JUNE 17, 1933

Railway Age

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When Smoke Stack Replacements come too soon

use WROUGHT IRON

WROUGHT iron has been written into a lot of smoke stack specifications since Byers again made wrought iron plates available.

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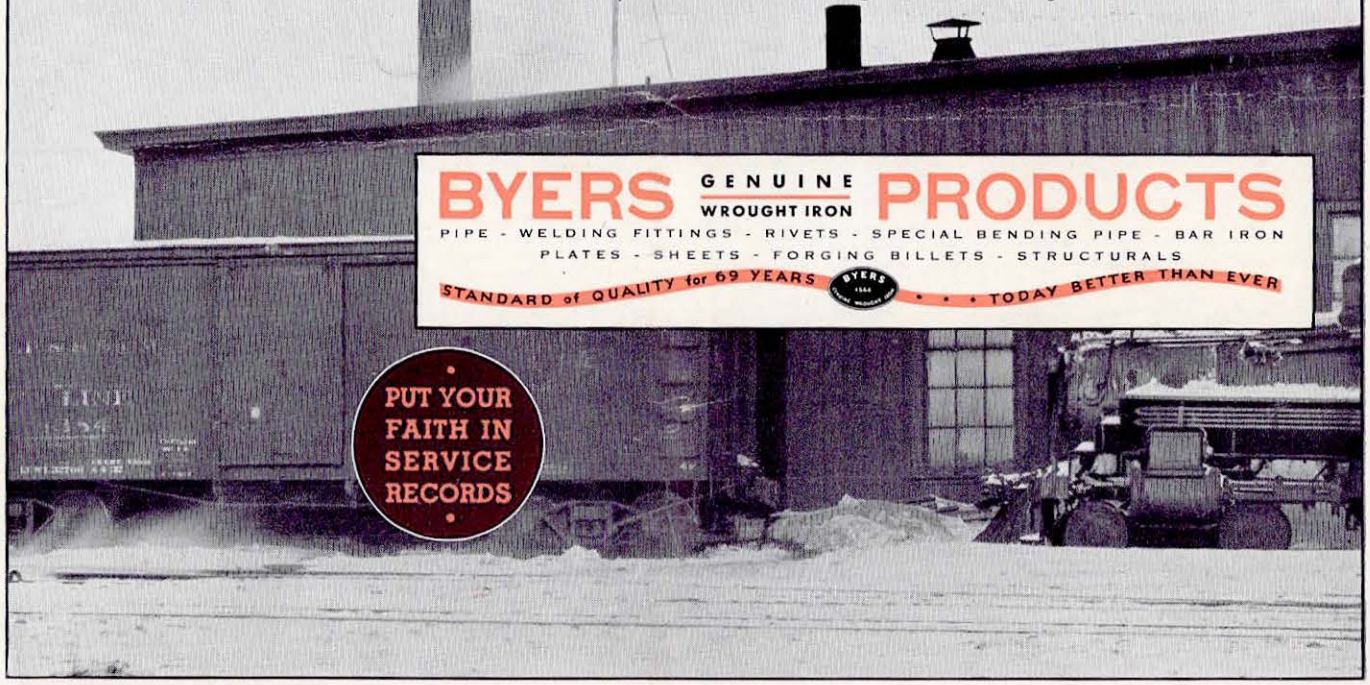

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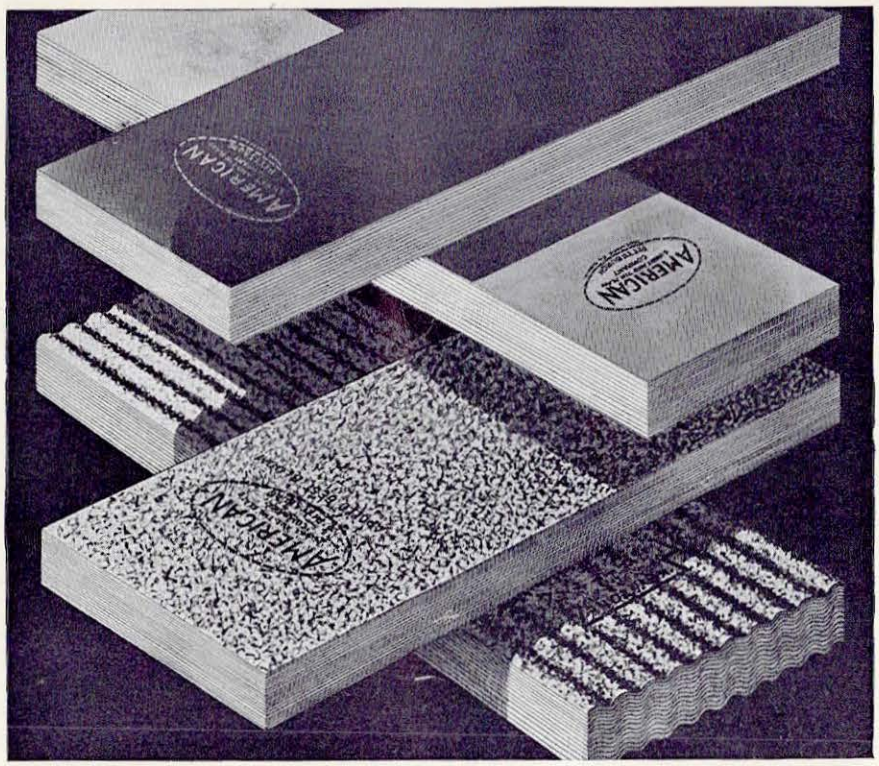

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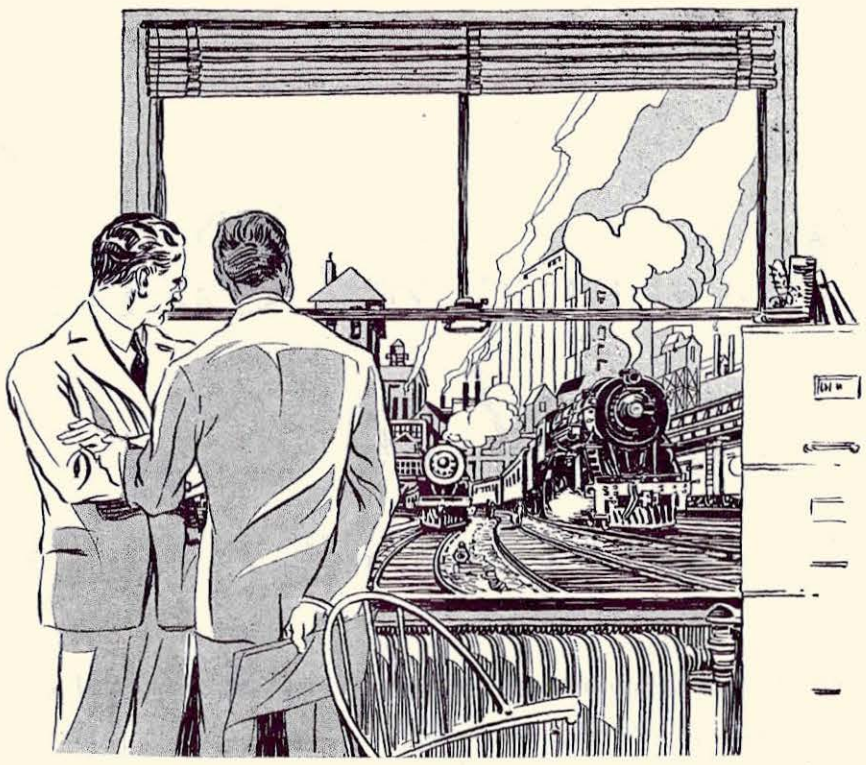

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Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered U. S. Patent Office.

Vol. 94 June 17, 1933 No. 24

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Delaware & Hudson Develops Fourth High-Pressure Locomotive ..... Page 854

An article describing this new unit of the D. & H. series—a triple expansion 4-8-0 type, developing 90,000 lb. tractive force and now on exhibition at the Century of Progress Exposition.

Builds New Tennessee River Bridge 858

Tells of new structure on the Memphis line of the Louisville & Nashville which involved pneumatic foundations and a 294-ft. vertical lift span.

Meeting of Freight Claim Division Held at Louisville 861

A report of these sessions at which improved methods of adjusting freight claims and means of eliminating discrimination were subjects featured in discussions.

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The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

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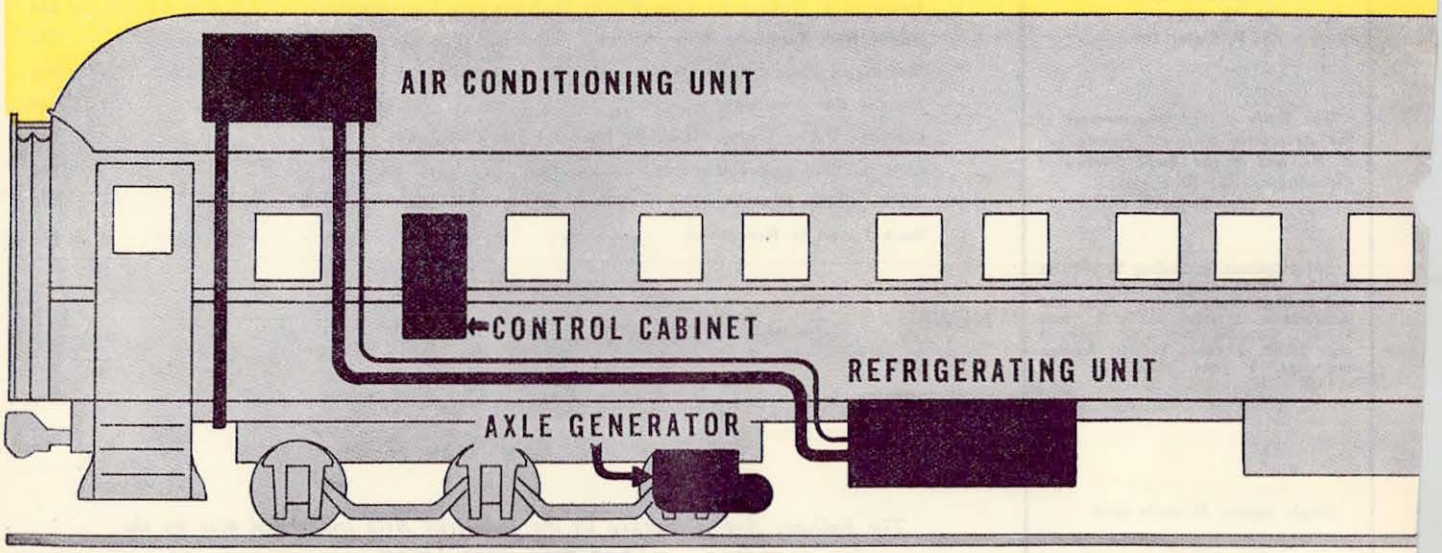

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questions!

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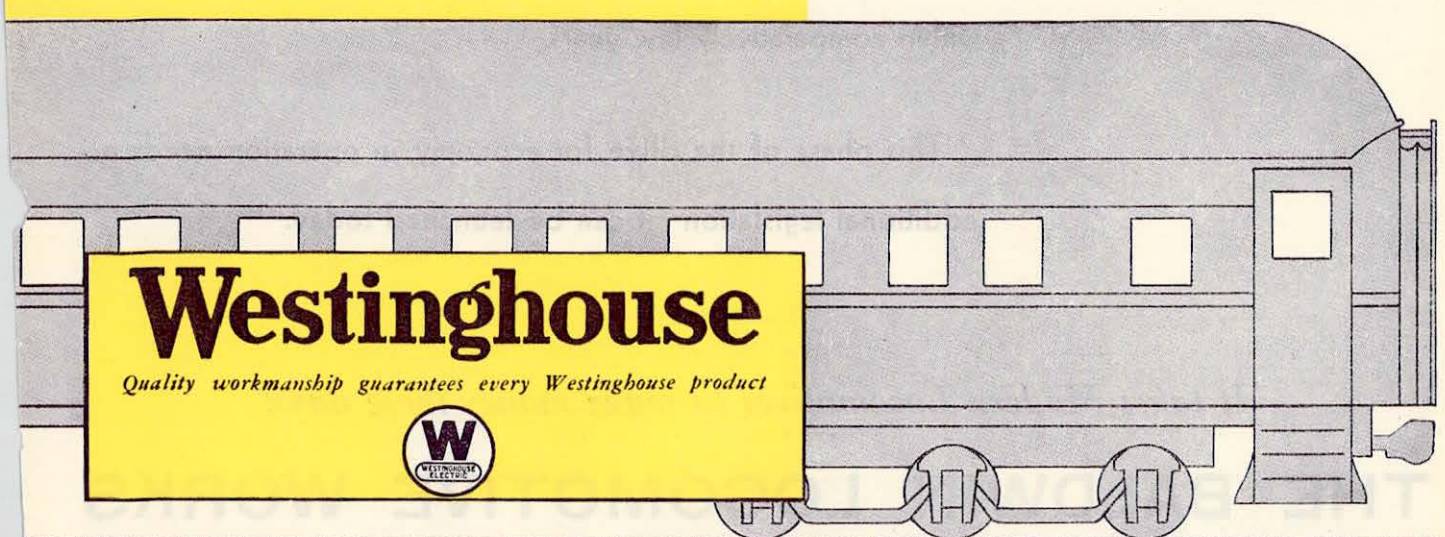

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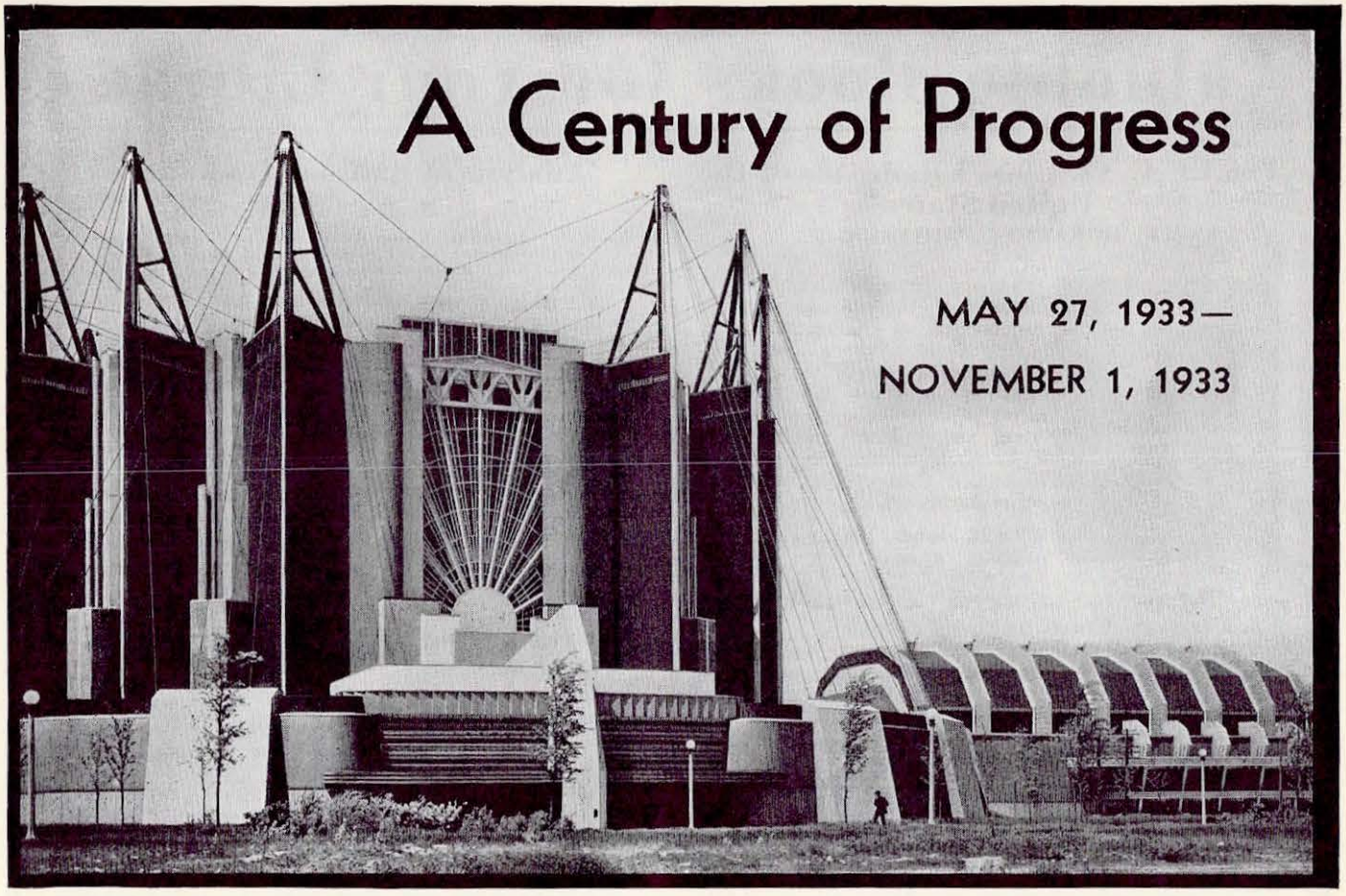

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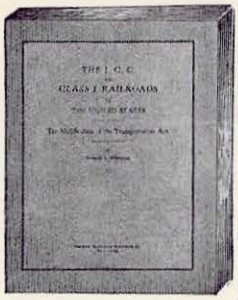

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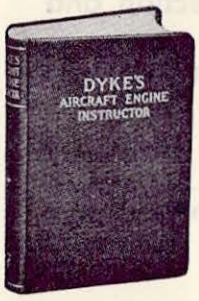

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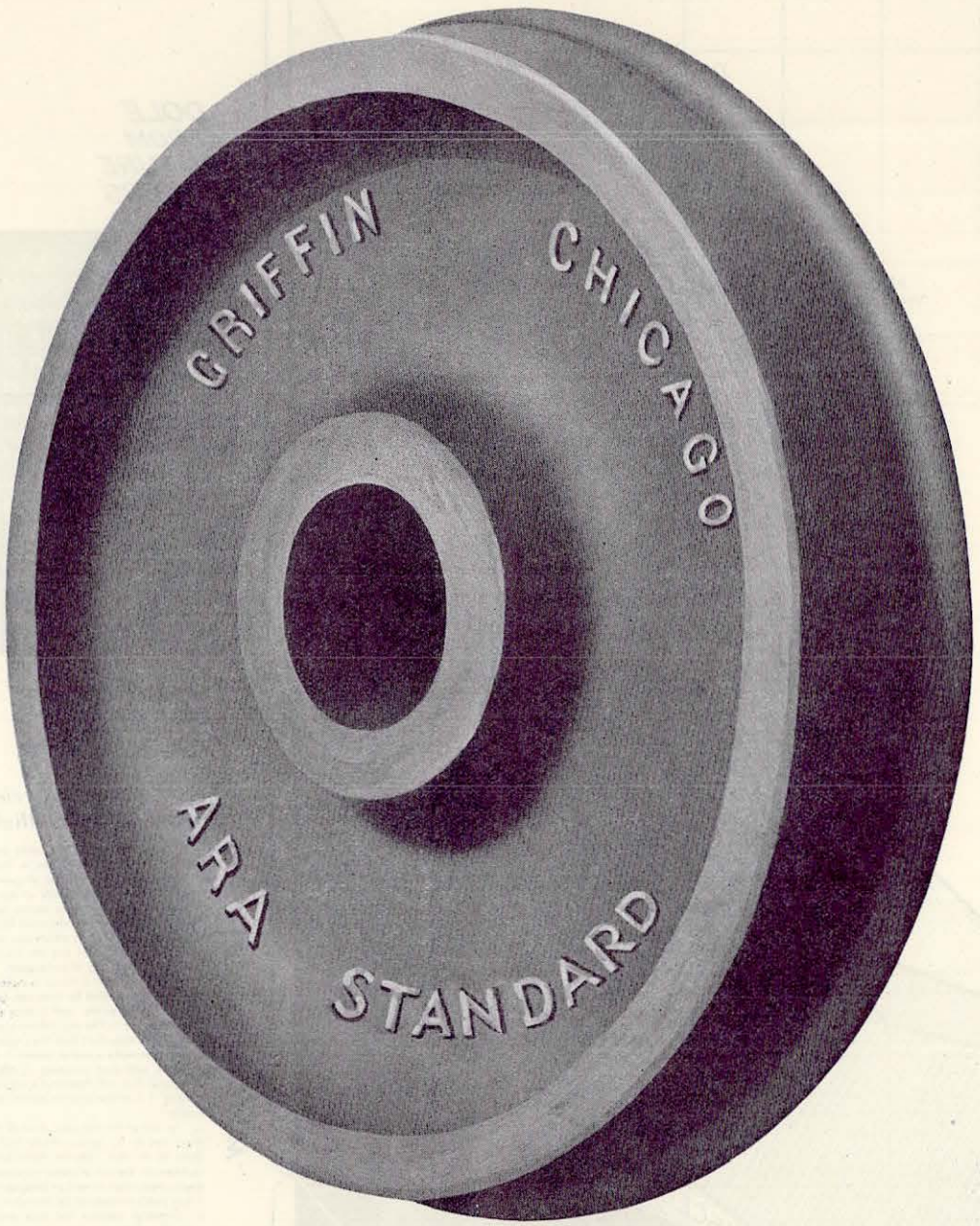

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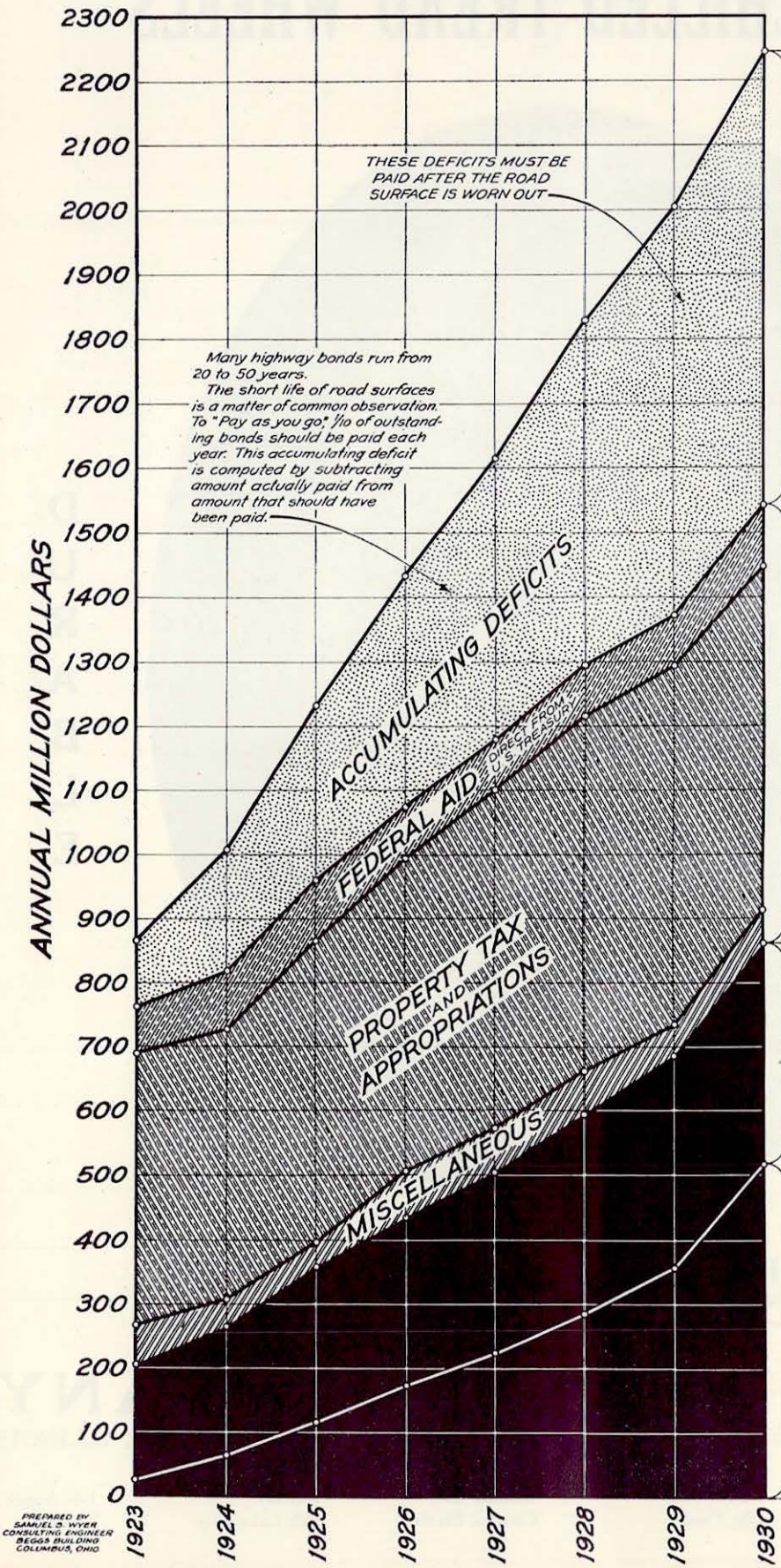
"USER'S" AND "PUBLIC'S" RELATIVE CONTRIBUTION TO RURAL HIGHWAY COSTS IN THE UNITED STATES FROM 1923 TO 1930

BASED ON DATA FROM U.S. BUREAU OF ROADS



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2. "A distinction must be observed between the regulation of an activity which may be engaged in as a matter of right and one carried on by government suffrage or permission."
3. "The movement of motor vehicles over the highways is attended by constant and serious dangers to the public, and is also abnormally destructive to the ways themselves."
4. "The mere fact that the truck company may not make a profit unless it can use a truck with load weighing 22,000 or more pounds does not show that a regulation forbidding it is either discriminatory or unreasonable."
5. "In view of the many decisions of this Court there can be, no serious doubt that where a State at its own expense furnishes special facilities for the use of those engaged in commerce, inter-state as well as domestic, it may exact compensation therefor."
6. "Common carriers for hire who make the highways their places of business may properly be charged an extra tax for such use."
7. "There being grave dangers incident to the operation of motor vehicles, a State may require users of such vehicles on public highways to file contracts providing adequate insurance for the payment of judgments recovered for certain injuries, resulting from their operation."
8. "In advance of the operation of a motor vehicle on its highways by a non-resident, the state may require him to appoint one of its officials as his agent on whom process may be served in proceedings growing out of such use."
9. "To exclude unnecessary vehicles—particularly the larger ones commonly used by carriers for hire, promotes safety and economy. State regulation of that character is valid even as applied to interstate commerce, in the absence of legislation by Congress which deals specifically with the subject."

Stabilization Not Provided for the Transportation Industry

Viewed in the light of the Industrial Recovery Act, which provides for widespread public or quasi-public control of all industry, the failure of the government to provide for similar control of transportation leaves a striking hiatus in its record of legislative accomplishment. Manufacturers of chewing gum or shoes or machinery, or anything at all, can make agreements to end wasteful competition and bad working conditions, and if they do not do so the government will do it for them. In transportation, however, as far as the government is concerned, the railways and their employees will continue to suffer from the competition of unregulated water and motor transport, paying wages which in many cases are the merest fraction of those of the railways. Moreover, $400,000,000 is to be spent on additional highway construction, with no assurance that a large part of it will not be used for heavy-duty highways paralleling the railways.

This observation is made in no spirit of captious criticism, either of the Administration or Congressional leaders. Their record of accomplishment in the past three months is a great one and it would be strange, indeed, if so vast a program, pressed through in so short a time, did not include some anomalies. It is important, however, that these omissions be widely recognized and that steps be taken now to assure their prompt correction when Congress reconvenes.

Transportation Industry Once Stabilized

The Industrial Recovery Act has many critics, most of whom doubt the possibility and effectiveness of the far-reaching control of industry provided for in it. The most convincing answer to such criticism would be to set up one industry as an example, establish fair competitive practices and wages in it, and then use it both as proof of the feasibility of, and a model for extending, such control. Ten years ago the nation had a successfully working example of controlled and planned economy in one of the greatest of industries —transportation. This control has been relaxed and all the old abuses—rate cutting, rebates, low wages and bad working conditions, unsafe practices—which regulation was designed to correct, have returned because of the failure of the government to include newer and rapidly developing agencies of transportation in the regulatory scheme. But for the failure to include new forms of transportation in the Interstate Commerce Act, the transportation industry would stand today as the perfect answer to critics who believe that such control of industry is impossible or ineffective.

An Important Duty of the Co-ordinator

One provision of the new railway act stipulates that the federal co-ordinator of transportation and the regional co-ordinating committees of railroad officers shall study means of improving the conditions surrounding transportation *in all its forms* and shall make plans for this purpose. It appears, therefore, that the "conditions surrounding" transportation by highways and inland waterways, such as the lack of regulation of rates, low wages and long hours of employees, unsafe operating practices and subsidies, are a very proper concern of the co-ordinator and the co-ordinating committees. It is to be hoped that the co-ordinator and the co-ordinating committees will act vigorously under this clause, examine thoroughly these "surrounding conditions" and make definite recommendations for their correction.

It would be difficult to overemphasize the importance of this issue, not only to the transportation industry, but also as a test of the sincerity lying behind the government's entire program for industrial planning and control. If such control is necessary or advisable for all industry, it is certainly so also for transportation. Indeed, since such control at one time existed when railways were the only important form of transportation, and still exists for the railroads, we may safely assume that such control is needed in transportation even more than in other industries. But, instead of vigorously restoring planned economy in transportation by the relatively simple device of extending the interstate commerce act to all agencies of transportation, the government has elected to ignore these other agencies, at least for the time being. Meantime it goes blithely into uncharted fields in an attempt to control all industry—a strategy which might be likened to that of a general who would withdraw his troops from a battle nine-tenths won, in order to pursue a more distant and far more formidable enemy. We have confidence in the open-mindedness and honesty of purpose of Administration officials and we believe, if they can be led to see the incongruity of their transport policy as so far disclosed in relation to their program

for industry in general, that the necessary corrections will be made.

The policy with regard to transportation, however, does not present an anomaly alone in its failure to include control of highway and inland waterway transportation. There is also evidence of a lack of understanding which has led to errors of a more positive nature, namely, the continued overinvestment in transportation facilities. We have already mentioned the 400 million dollar appropriation for roads, with no safeguards to prevent a large portion of this appropriation from being used, not in areas suffering from a lack of transportation facilities, but in those suffering from an oversupply. No person is permitted to lay down a rail line wherever he pleases, simply because he has the money to do so. He must first convince the regulatory authorities that the territory is not already adequately served and that his project will cater to the public's convenience and necessity. Yet a highway commission or the Army engineers may construct an arterial road or a waterway, as the case may be, if they can secure the money, without any showing whatever as to the transportation needs of the territory or the adequacy of existing facilities. By continued appropriations for such purposes, with no requirement for showing public necessity before an impartial tribunal, the government is forcing upon the transportation industry the very antithesis of planned economy which is the cornerstone of its policy for dealing with industry in general.

St. Lawrence Project, an Example of Planless Economy

If planned economy is a desirable policy then what are we to say of the St. Lawrence Seaway project, involving an investment of hundreds of millions of new capital designed to take traffic from railroads already built and used to less than half their capacity? A more modern and efficient method of transportation which in justice should supplant an older, wasteful agency? Not a bit of it; if the New York Central Railroad were freed of capital charges, freed of ad valorem taxes, freed of maintaining its roadway—if it were thus placed on accounting parity with the St. Lawrence Seaway—it could haul all the freight that the canal will haul at lower cost. Moreover, it would do the job infinitely more quickly and would be on duty 24 hours a day throughout the year, regardless of fog or ice. The St. Lawrence Seaway threatens not only the loss of some of the investment in the railways, but the further economic waste of transferring traffic from a more efficient agency to one which, fairly compared, is less efficient. No recognition has thus far been vouchsafed this important fact by those responsible for the government's industrial policies. Yet it must be recognized if we are to have ordered economy in transportation, such as is envisioned by the government for industry as a whole.

It becomes the duty of everyone concerned with the well-being of the transportation industry to proclaim the fact that no attempt has been made to deal with its fundamental difficulties. These difficulties arise from the effort of an old agency which is self-sustaining, tax-yielding and socially controlled to a high degree, to hold its own against new competitors which have some intrinsic superiorities, but the main advantage of which lies in the fact that they not only yield no (net) taxes, but consume them by the billions, and that little or no control is exercised over them.

Tax-supported Transport a New Policy

The policy which permits a portion of transport costs to be shifted from the users to the shoulders of the general taxpayers is a new one (accounting in no small measure for the financial difficulties of the principal payers of taxes—the owners of real property). Tolls were charged on the old Erie Canal until the railways, similarly self-sustaining, by superior efficiency, led to their removal if any traffic was to be retained. The early highways used for transportation over distances (as opposed to purely local use) were toll roads. The use of these roads for such transport declined almost to nothing with the advent of the railways and tolls were perforce abolished. The principle of self-sustaining transportation which had been built up through several centuries and which was applied to all forms of transportation thus became the exclusive heritage of the railways, and it remains firmly fixed upon them to this day. It must either be removed as an obligation of the railways or applied in equal measure to their competitors.

The conclusion is inescapable that, to establish economic planning in the transportation industry—

1. Commercial highway and waterway transport must be placed upon the same plane of self-support and taxation as the railways.
2. There must be similar control of rates and working conditions for all forms of transportation.
3. Overexpansion and destructive competition must be prevented by the control not only of new services upon, but of investment in highways and waterways, by the same authority which regulates such services and investment by the railways.

Consider Signaling

As railroad traffic returns to normal certain operating problems will arise which can be dealt with most efficiently by the use of modern signaling facilities, for example, centralized traffic control. The first installation of this revolutionary method of directing train movements by signal indication over an entire division without train orders was placed in service in 1927. Other installations followed as the advantages of this system were demonstrated, but further progress was halted by the depression. This interval of inactivity has given opportunity to prove conclusively the merits of centralized traffic control, and to improve the equipment to a

stage of efficiency and reliability of operation transcending standards previously established for signaling facilities. Thus, the railroads, now have a new "tool."

This new "tool" can be used effectively in meeting the requirements imposed by increases in traffic at a minimum outlay for additional trackage. Because of the facility with which it can be employed in the reduction of train delays, it is of especial advantage on single-track, particularly where train movements occur in peaks during certain times of the day or certain seasons of the year, and the investment in second track cannot be justified because of the limited periods during which such added trackage is of any benefit. There is no "guess work" as to results to be effected by centralized control because time-distance charts can be prepared to show present and future train movements.

However, the advantages of centralized control are by no means limited to single-track lines, for there are many extensive sections of double track which do not now, nor will for years to come, have a traffic which cannot be handled efficiently on a single-track, properly signaled. By reverting to single-track operation, it will be possible to save at least $1,000 per mile annually in the maintenance of one track, and where rail and tie renewals are far behind schedule, the abandonment of a track will effect even larger reductions in current outlay if action is taken now. The money that would be required to rehabilitate the track taken out of service will go far in paying for the centralized traffic control. There are thus several reasons for immediate investigations of the possibilities of centralized control on many sections of railroad.

Where Begin to Co-ordinate?

Congress having passed the emergency railroad bill, the co-ordinator and regional committees will probably soon enter the spotlight of railway interest to remain there for a considerable period. What economies will they effect? How will their acts affect railroad men and railroad service? These questions are being asked wherever railroad men congregate, and some of the speculative answers do credit to the imaginative faculties of railroad people. Perhaps the best place to search for the probabilities of co-ordination is the testimony of the presumptive co-ordinator, Commissioner Eastman, at the hearings of the Senate Committee on Interstate Commerce. He mentioned the following as possible sources of savings:

Unnecessary duplications of service or facilities, including The wastes which exist at large railroad centers and which could be eliminated by joint use of terminals, both freight and passenger, and the lines and facilities incident thereto.

Unnecessary passenger or freight train service, such as could be eliminated by pooling arrangements.

Use of unduly circuitous routes.

Extravagance in solicitation of traffic.

Waste in equipment repair expense, such as could be avoided by joint use of certain shops and abandonment of others.

Waste in passenger ticket offices, such as could be avoided by combined ticket offices.

Unnecessary allowances to large shippers for certain services.

Unduly low charges for warehousing and like accessorial services.

Waste in the use of equipment such as might be avoided by pooling arrangements, change in car rentals, or other means of reducing empty return movement of cars.

Wasteful practices in the purchase of equipment, rails, ties, materials and supplies, including not only purchasing methods but also standardization and specifications.

Reduction of unprofitable operations and provision of better service by the substitution of motor vehicles for steam service and their use as auxiliaries in terminal service.

Wasteful practices in the payment of loss and damage claims.

Wasteful practices with respect to freight-forwarding companies and improvements in their use.

Waste in the handling of less-than-carload freight, such as can be reduced by railroad co-operation.

Wasteful practices in the operation of unnecessary parallel motor-bus or motor-truck services.

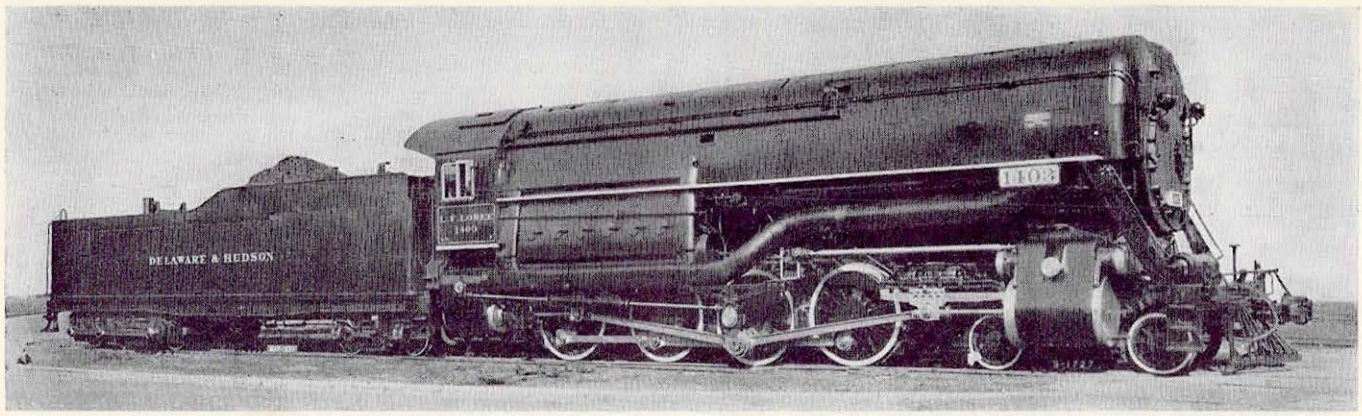
Wasteful policies with respect to rates, and consideration of general plans to adjust freight-rate structures to modern needs.

Research into practical use of cost accounting.

Most of these suggestions, it will be noted, run afoul of the provision in the act which prevents the dismissal of employees in carrying out the orders of the co-ordinator; and savings of such character can be made only as traffic increases to make positions for employees who would, but for this provision, be dropped from the payrolls. Two or three of Commissioner Eastman's suggestions, however, can be made effective with little hindrance from the provision for protecting employment. Among these, certainly, are elimination of wasteful practices with respect to forwarding companies and railroad co-operation in the handling of l. c. l. freight.

Carloadings in the week ended June 3 were some 60,000 greater than in the same week of 1932. Carloadings of l. c. l. freight, however, were almost 7,000 less than in the similar 1932 week. No one will believe for a moment that this class of traffic has actually diminished; rather, the figures simply indicate a further loss to trucks and forwarders. Meantime the railroads continue to give the same nation-wide, all-commodity service for this class of traffic and the heavy overhead expense, which varies but slightly with the volume, has to be spread over a greatly reduced tonnage. The average tonnage per car of l. c. l. freight has declined below that of the average light truck.

Pooling of this traffic with nation-wide collection and delivery service, either by the railroads themselves or through the medium of the Railway Express Agency, ought to provide savings of such magnitude that if a large portion of them were immediately passed on to shippers, sufficient traffic would be recovered from trucks and forwarders not only to keep on the job all employees now engaged in l. c. l. handling, but many more beside. If to such consolidation of this traffic could also be applied Commissioner Eastman's suggestion for rate simplification, even more traffic might be won back to the rails. Vigorous tackling of the problem of placing l. c. l. traffic on a profitable basis, with service and rates attractive to shippers, therefore, would appear to be the obvious point for co-ordination to begin.



The D. & H. Triple-Expansion Locomotive

Delaware & Hudson Develops Fourth High-Pressure Locomotive

Triple expansion, 4-8-0 type, develops 90,000 lb. tractive force, simple—On exhibit at Century of Progress Exposition

AMONG the exceptional exhibits at the Century of Progress Exposition now being held at Chicago is a triple-expansion locomotive which was developed by the Delaware & Hudson and built by the American Locomotive Company. This locomotive is the fourth of a series, in all of which are incorporated boilers having water-tube fireboxes and fire-tube barrels which carry working pressures considerably higher than customary contemporary practice.

Preceding Locomotives of Series

The preceding locomotives of the series are the "Horatio Allen," [1] which has a working pressure of 350 lb. per sq. in.; the "John B. Jervis," [2] with a working pressure of 400 lb. per sq. in., and the "James Archbald" [3] which carries 500 lb. per sq. in. The new locomotive, the "L. F. Loree," also carries 500 lb. per sq. in., but differs essentially from its three predecessors in the use of the triple-expansion principle, whereas they all employ cylinders of the cross-compound type.

Unlike the three predecessors, which are all of the 2-8-0 type, the L. F. Loree is of the 4-8-0 type and has four cylinders. The high-pressure and intermediate cylinders are embodied in a single steel casting which is mounted in the frames at the rear of the locomotive behind the firebox. Two low-pressure cylinders, which, with the saddle, are also included in a single steel casting, are placed in the conventional location under the smokebox. The two main rods on each side of the locomotive drive on one main crank pin.

Results in Service

Following the delivery of the locomotive time for complete tests was not available before it was sent to Chicago to be placed on exhibition at the Century of Progress Exposition. A series of dynamometer-car runs were made, however, to check the tractive capacity of the locomotive at various cut-offs. The highest drawbar pull recorded, without the assistance of the auxiliary locomotive, was 82,000 lb., the locomotive operating triple-expansion at 87½ per cent cut-off and at a speed of 4 m.p.h. Operating at a constant speed of 4 m.p.h. and 66 per cent cut-off, ascending a .24 per cent grade, drawbar pulls of 61,000 to 63,000 lb. were recorded. The train on which these observations were made consisted of 4,763 actual tons in 71 cars, the dynamometer car and the caboose. With a train of 6,103 actual tons in 92 cars, the dynamometer car and the caboose, the locomotive, operating at 66 per cent cut-off with the auxiliary locomotive cut in, developed a maximum drawbar pull of 74,000 lb. at the top of a .52 per cent grade at about 4½ m.p.h.

On another run, with a train of 3,274 actual tons in 50 cars, the dynamometer car and a caboose, the locomotive developed a drawbar pull of 37,000 lb. working in 50 per cent cut-off at a practically constant speed of 20 m.p.h. on a .42 per cent grade.

The Horatio Allen, the John B. Jervis and the James Archbald have all been subjected to efficiency dynamometer tests over the same section of the line, northbound between Oneonta, N. Y., and Dante, over a .5 per cent compensated grade. The thermal efficiency at the tender drawbar based on coal as fired was as follows: Horatio Allen, 8.73 per cent; John B. Jervis, 9.35 per cent; James Archbald, 10.4 per cent. It is expected that, after all adjustments have been made, the L. F. Loree, under comparable conditions, will develop an overall thermal efficiency of between 12 and 13 per cent.

The Boiler

One of the outstanding differences in the construction of the boiler of the L. F. Loree as compared with those on the preceding three locomotives is in the use of solid-

[1] "Horatio Allen," page 353, February 7, 1925, *Railway Age*
[2] "John B. Jervis," page 893, March 12, 1927, *Railway Age*
[3] "James Archbald," page 143, July 26, 1930, *Railway Age*

forged nickel-steel steam and water drums in the firebox construction instead of drums of riveted plate construction. These drums are turned and bored eccentrically, thus providing a thickening of the walls at the sides where the water-tube holes are located. Thus the compensation is effected for the reduction of section through the water-tube holes without the necessity of using plate of this thickness all around. The sections of the steam drums ahead of the firebox are of riveted plate construction. Compared with the butt-seam riveted drums on the James Archbald, which carry the same boiler pressure, this construction saved 5,274 lb. in the weight of the boiler.

The boiler shell and the two front steam drums, including liners, welt strips, etc., are of silico-manganese steel. Other parts are of suitable grades of carbon steel.

Principal Dimensions and Weights of the Triple-Expansion Locomotive "L. F. Loree"

Railroad	Delaware & Hudson
Builder	American Locomotive Co.
Type	4-8-0
Service	Freight
Rated tractive force:	
Simple	90,000 lb.
Triple-expansion	75,000 lb.
Auxiliary locomotive	18,000 lb.
Weight on drivers ÷ tractive force:	
Simple	3.48
Triple expansion	4.17
Cylinders, diameter and stroke:	
High-pressure	20 in. by 32 in.
Intermediate-pressure	27½ in. by 32 in.
Low-pressure (2)	33 in. by 32 in.
Valve gear, type	Dabeg, rotary cam
Weights in working order:	
On drivers	313,000 lb.
On front truck	69,000 lb.
Total engine	382,000 lb.
Tender (full load)	274,500 lb.
Wheel bases:	
Driving	18 ft. 10 in.
Rigid	18 ft. 10 in.
Total engine	33 ft. 9 in.
Total engine and tender	83 ft. 8¾ in.
Wheels, diameter outside tires:	
Driving	63 in.
Engine truck	33 in.
Boiler:	
Type	Water-tube, fire-tube
Steam pressure	500 lb.
Fuel, kind	Bit. coal
Diameter, first ring, inside	68-1/16 in.
Firebox, length and width	139-15/16 in. by 77¾ in.
Arch tubes, number and diameter	6—3½ in.
Tubes, number and diameter	155—2 in.
Flues, number and diameter	52—5½ in.
Thickness, tubes	No. 12 min., B.W.G.
Thickness, flues	No. 5 min., B.W.G.
Length over tube sheets	15 ft.
Grate area	75.8 sq. ft.
Heating surfaces:	
Firebox	965 sq. ft.
Firebrick tubes	61 sq. ft.
Boiler tubes	1,209 sq. ft.
Flues	1,116 sq. ft.
Total evaporative	3,351 sq. ft.
Superheating	1,076 sq. ft.
Combined evap. and superheat	4,427 sq. ft.
Tender:	
Water capacity	14,000 gal.
Fuel capacity	17½ tons

The Steam Pipes

The high-pressure superheated steam is conveyed from the superheater header to a Wagner throttle under the jacket on the right side of the smokebox. From the throttle flange a corrugated steel pipe leads downward and to the rear in a sweeping curve to a seamless cold-drawn steam pipe, 8 in. in outside diameter, which extends back alongside of the right firebox drum to the rear cylinder casting. When bolted in place the steam pipe is attached at its ends to flanges which bear a fixed relation to each other, while the joint between the two sections of the pipe changes its position with relation to the ends in accordance with variations in the temperature of the pipe.

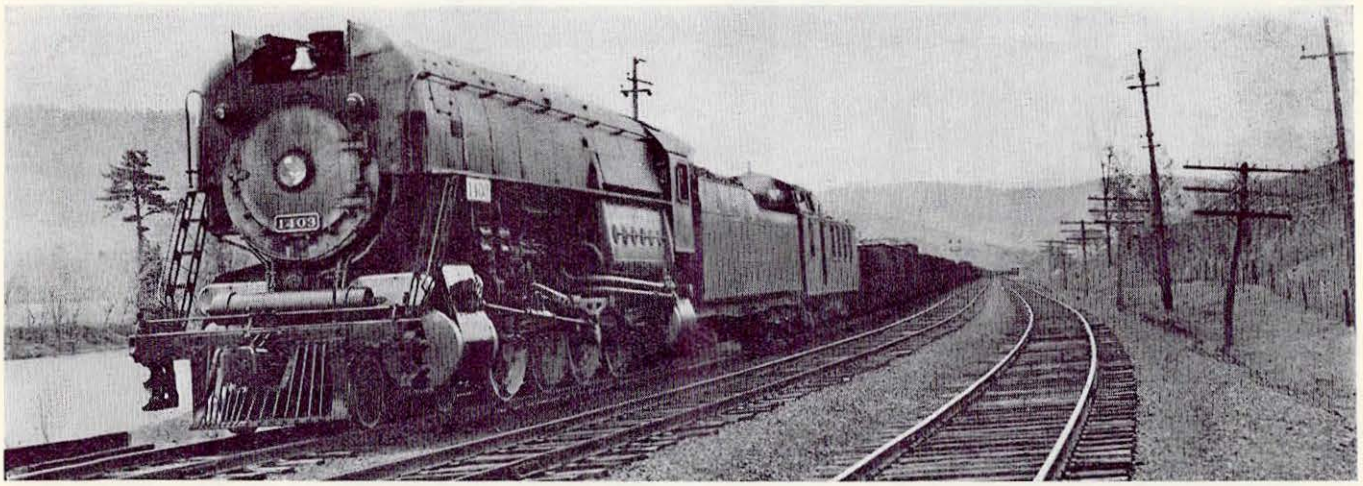
The support for the front end of the rear section of the steam pipe must permit longitudinal movement without binding and still care for a variable tendency toward vertical displacement, because of the eccentricity of the expansion and contraction forces.

The low-pressure receiver pipe is composed of seamless steel tubing of 9 in. nominal inside diameter, which extends from the front face of the rear cylinder casting between the frames. This pipe, which normally carries pressures less than 100 lb. per sq. in., is assembled in four sections, the forward one of which is a slip-type expansion joint.

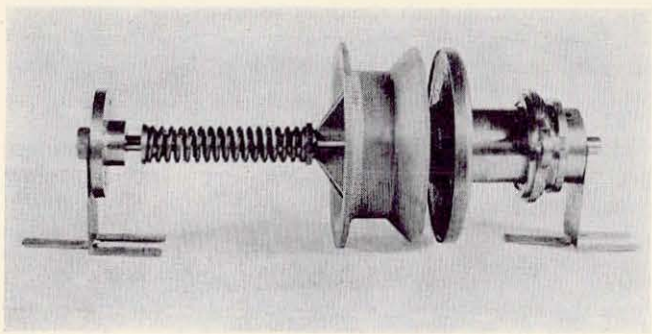
Cylinders and Valves

Except for the low-pressure cylinders, two poppet valves are provided for each end of each cylinder, one of which controls the admission and cutoff and one the release and compression. These valves are housed in box-like enclosures projecting up from the cylinder barrel over the ports at each end. The poppet-valve stems extend through glands in the inner walls of these housings toward the cam box which is placed over the middle of the cylinder barrel.

With the exception of the exhaust valves for the intermediate-pressure cylinder and the admission valves for the low-pressure cylinders, which are 9½ in. in diameter, all valves, both inlet and exhaust, provide openings 9 in.



The Locomotive Undergoing Capacity Tests



A Poppet-Valve Assembly

in diameter. In the case of the low-pressure cylinder, two 9-in. exhaust valves are provided at each port.

The high-pressure exhaust passes directly to the intermediate-pressure receiver. This is a chamber in the casting between the two cylinder barrels which is connected directly to the intermediate-pressure admission-valve chambers. Passages from the exhaust valves of this cylinder converge in a single passage cored through the receiver space to the opening in the front face of the cylinder casting to which the low-pressure receiver pipe is connected.

The intercepting valve is housed within the low-pressure receiver chamber in the front saddle casting. It functions automatically in starting to close the intermediate exhaust from the low-pressure receiver and to admit high-pressure steam, through a reducing valve, into the receiver and, as the intermediate exhaust pressure builds up, to open the receiver pipe to the low-pressure receiver volume and close the high-pressure steam supply. It may be operated by manual control at any time to divert the intermediate exhaust to the atmosphere, through a back-pressure valve which maintains 83 lb. per sq. in. in the receiver pipe, and admit high-pressure steam, through the reducing valve, to the low-pressure receiver.

In starting, steam is fed to the intermediate-cylinder receiver directly from the high-pressure steam space through a spring-loaded feed valve, which closes when a pressure of 170 lb. per sq. in. has been built up in the receiver.

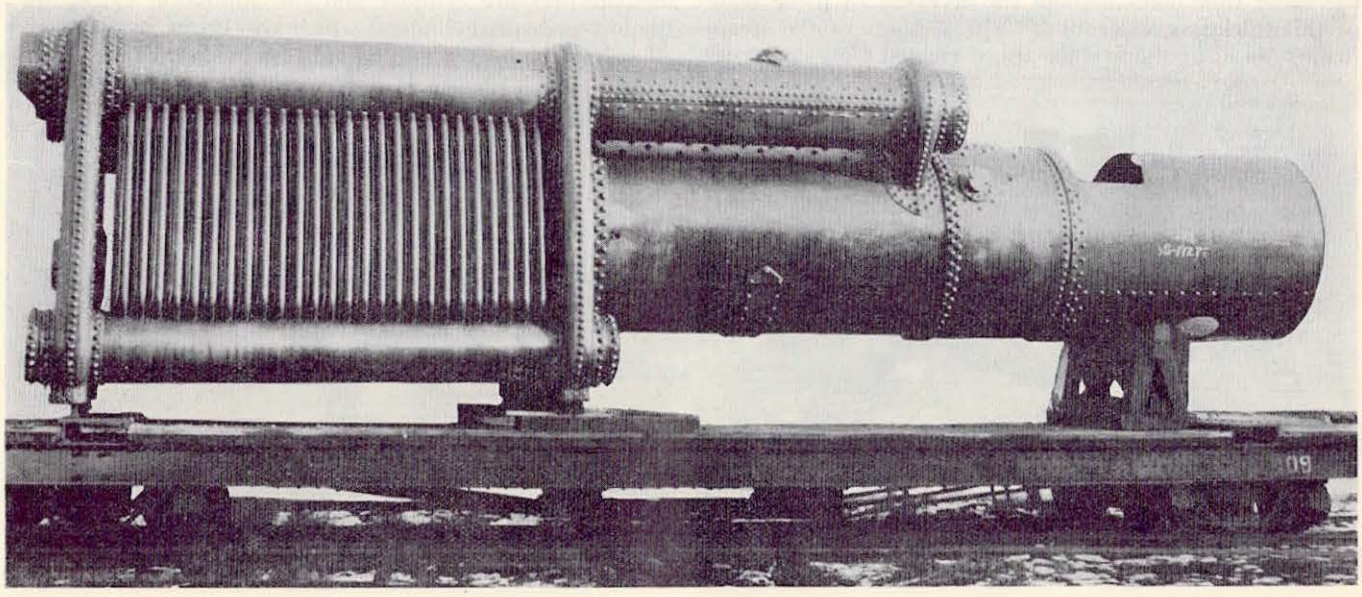
When working short cut-offs in triple-expansion, a valve in the cab permits the engineman to admit a limited amount of steam from the boiler to boost the low-pressure receiver pressure.

The Valve Motion

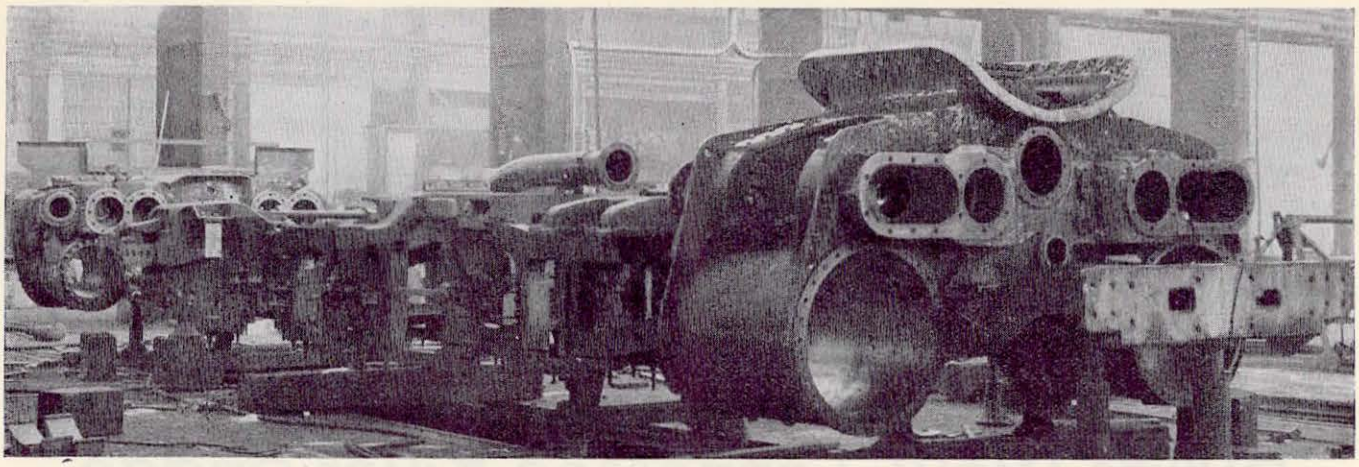
The valve motion for each pair of cylinders is furnished by a single drive. The motion for the high-pressure and intermediate-pressure cylinders is taken from the right main crank pin and that for the two low-pressure cylinders from the left main pin. The motion is provided by a crank arm on the end of each crank pin, the other end of which is in line with the center of the axle. From this point a shaft extends out about 10 in. to a worm-gear box. As the latter is supported rigidly by a frame yoke, the short shaft is furnished with universal joints at both ends. From the worm-gear boxes shafts carry the motion, backward on one side of the locomotive and forward on the other, to the side of the cylinders. Here a worm drives a horizontal cam shaft which extends transversely across the locomotive. Cams in housings mounted over each cylinder barrel are provided on this shaft for the inlet and exhaust valves. The cam shaft is driven by a splined sleeve, within which the shaft may be moved along its axis.

Where the shaft passes through the cam box over each cylinder, it is fitted with two sets of cams, one for the inlet valves and one for the exhaust valves. There are 10 cam positions in each set, six for forward motion, one in the center and three for backward motion. One cam in each set operates the valves for both ends of the cylinder through rollers and rockers placed on opposite sides of the shaft. The rockers cause the valves to open by pressure on the stems. The valves, which are of thin section and light weight, are closed by springs.

The cut-offs of all four cylinders are controlled by a single reverse gear. A rack between the two heads of the trunk piston of the reverse-gear rotates a transverse shaft which is carried across the locomotive. A bevel gear box on each end drives a longitudinal shaft. That on the left leads backward to the side of the intermediate cylinder, while that on the right extends forward to the low-pressure cylinder. Each terminates in a gear box on the end of the transverse cam-shaft housing opposite to the worm-drive connection in which a pinion engages a rack sleeve on the end of the cam shaft which causes the latter to be displaced axially when the reverse shaft



The Boiler of the Triple-Expansion Locomotive



The Frames and Cylinders Assembled in the Erecting Shop

is rotated. Provision is made in the reverse gear to divide and lock the gear travel into steps which correspond to the distance between cam centers. Thus a single reverse gear controls the valve events in all four cylinders.

The use of the cams, however, limits the number of working cut-offs to the number of cams which can be brought in line with the rocker arms which move the poppet-valve stems. In this design nine cams are provided in each set, making 36 in all on each transverse shaft. These provide six changes of cut-off in forward motion, with suitable changes in admission, release and compression, and three changes in backward motion. The center cams in both the inlet and exhaust sets are true circles, of sufficient diameter to hold all valves open, except the high and intermediate-cylinder admission valves, thus providing for free circulation between opposite ends of the cylinders when drifting. Any predetermined combinations of events for the three expansion stages may be provided for each operating position of the reverse lever, and the four events—admission, cut-off, release and compression—can be fixed independently of each other.

Frames and Running Gear

The main driving wheels are of Alco box section, somewhat lighter in weight and considered less subject to cracking than the conventional design. The main driving boxes are fitted with S. K. F. roller bearings, the journal size being 13 in. by 14 in. The journals of the remaining drivers are crown type, 11 in. by 14 in. The four-wheel engine truck is of the Alco constant-resistance type, with inside plain bearings. The side frames and journal boxes are cast integral. Instead of the usual cellars, provision is made for access to the inside of the boxes for lubrication through handholds in the front and back walls, respectively, of the two boxes in each side frame.

In the connection and drive of the crank-pin ends of the two main rods on the main pin the principle of the tandem main rod is employed. The main rods, side rods, piston rods and the connecting rods of the auxiliary locomotive are of carbon-nickel steel, quenched and tempered. The use of this material effected a reduction of 37½ per cent in the weight as compared with carbon steel. The eccentric is of carbon vanadium steel.

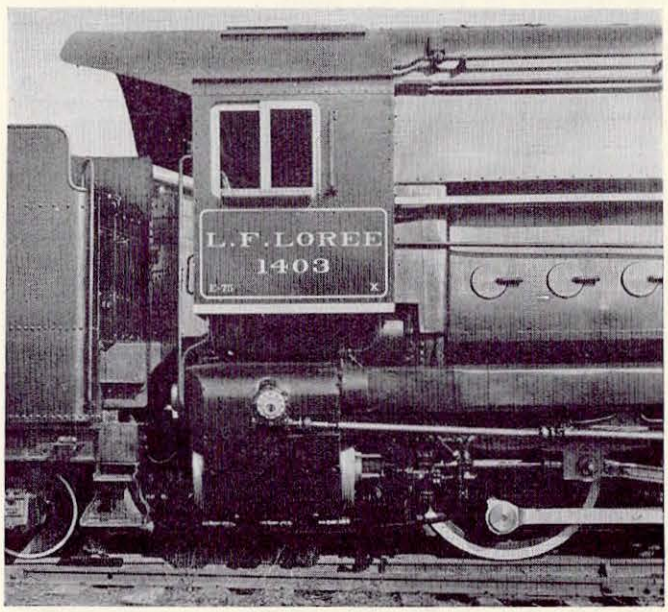
The frames are separate high-manganese-steel castings which are secured to the steel cylinder castings, front and back, by bolts and keys. Aside from the cylinders, the principal transverse bracing comprises the front bumper, deck and guide-yoke crosstie which is an integral steel casting extending under the cylinders and about 80 in. back of the cylinder casting.

The guides are of the single-bar type. Those for the front cylinders are supported in the usual manner, the front ends on the rear cylinder heads and the rear ends from the guide yoke. The rear guides are entirely separate from the cylinders and are supported from the frames at both ends. Neither of these supports is carried across between the frames. In the case of the rear supports, the low-pressure receiver pipe interferes and, in the case of the front-end supports, the ash pan is an additional obstruction. At the latter location, however, a bolt-and-sleeve spacer is inserted between the lower frame rails.

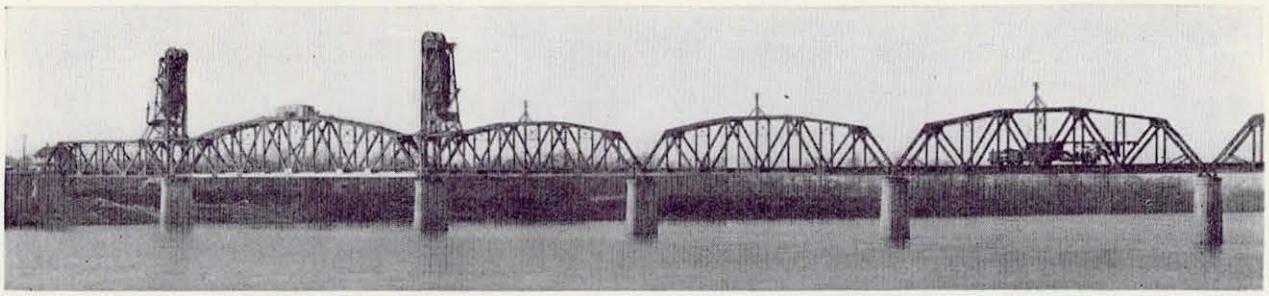
Other Features

The locomotive is equipped with the Dabeg feedwater heater, with which the D. & H. has already had considerable experience. This device is an open-type heater and is operated by a pump which takes its power from the left front crosshead.

The cylinder and valve lubrication is provided by a 32-feed Bosch force-feed lubricator. The locomotive has two duplex steam gages. One registers pressure in the high-pressure steam pipe and in the intermediate-pressure receiver. The other shows the pressure in the low-pressure receiver and at the low-pressure exhaust.



The High-Pressure Cylinder



View of the New Tennessee River Bridge—Taken When Only the Bottom Chord of the Lift Span Had Received the Field Coat of Aluminum Paint

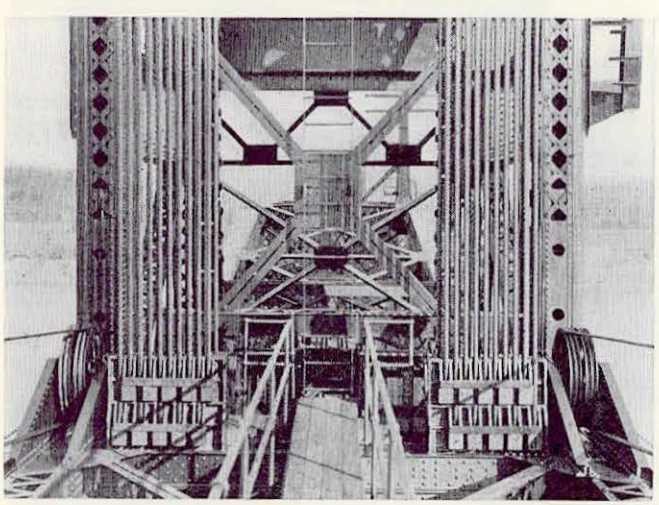
Builds New Tennessee River Bridge

Louisville & Nashville renews structure on Memphis line, involving pneumatic foundations and a 294-ft. vertical lift span

A VERTICAL-LIFT span 294 ft. 4½ in. long that embodies a number of distinctive elements is the primary feature of a new bridge across the Tennessee river at Danville, Tenn., completed late last year by the Louisville & Nashville to remove live-load restrictions imposed by an old structure that had been in service since 1898. The project also included the construction of new piers with pneumatic foundations because the old substructure was not suitable for the support of the new spans.

The present structure is the latest of a series of structures that were built in turn at this crossing of the Tennessee river, which is on the line of the L. & N., that was opened for traffic into Memphis, Tenn., in 1860. In 1898, the existing bridge, consisting of Warren combination trusses, embraced a swing span adjacent to the south bank that provided two openings of 120 ft., and that year the fixed spans were replaced by new pin-connected steel spans, including a swing span in place of two of the old fixed spans near the middle of the stream, that provided duplicate 170-ft. openings. The old swing span remained in place until 1907, when it was replaced by two fixed spans.

Incidentally, the change in the location of the channel opening in 1898 was the occasion for the rather ingenious conversion of a fixed span pier into a pivot pier by enclosing it in a ring of piles which were braced against the old masonry and capped with a timber circle to support a structural steel ring that carried the balance-wheel track. This swing span was superseded in the project just completed by a vertical lift span 294 ft. 4½ in. long, center to center of end bearings, which provides a single channel opening of 284½ ft.



View Taken from the Top of the Lift Span Looking Toward One of the Towers

The New Bridge

The new bridge is 129.3 ft. longer than the structure it replaces, consisting of one 74-ft. through plate girder span, five 200-ft. through truss spans and a 176-ft. 7½-in. through truss span in addition to the lift span, whereas the old structure consisted of four through truss spans of about 190 ft., in addition to a 385-ft. 10-in. swing span, and two 130-ft. 10-in. through truss spans, the difference in length resulting primarily from the need for a sufficient overlap of the ends of the old steel structure to insure that there would be an adequate distance between all new and old piers to avoid any interference during the construction of the new substructure. This was a matter of great importance in this case because the old piers were supported on timber grillages (hand-hewed oak, held together by 24-in. wooden pins) at a limited depth, whereas the new piers were carried to rock 25 to 30 ft. below stream bed.

There was no change of grade on the bridge; the track is level, with base of rail 56.08 ft. above low water on the gage and 7.38 ft. above maximum recorded high water. This gives a clearance of 1 ft. 10½ in. between low point of the steel and high-water level, and with a lift of 43½ ft. of the movable span there is a vertical clearance over high water of 45 ft. 4½ in. when the span is in the raised position.

General Arrangement and Outline

As to the general arrangement and outline, the bridge as a whole conforms to prevailing practice. The spans are all riveted through Warren type trusses with verticals, and have curved top chords except in the 176-ft. 7½-in. span. A departure from usual practice of recent years is the introduction of collision struts between the end posts and the intersection of the hip verticals with the bottom chord.

The lift span is supported at each corner by 20 wire ropes 1⅞-in. in diameter, which pass over a 13-ft. cast

steel sheave to a concrete counterweight enclosed in a steel box, the unbalanced weight of the counterweight cables being offset by the conventional counterweight-chain arrangement. Operation is effected by means of independent operating cables actuated from power-operated drums in a machinery house at the center of the span on the top chords. The objection often raised to this plan, to the effect that it introduces the problem of supplying electric current to movable structures, does not hold in this case as electric power is not employed, dependence being placed on a Sterling six-cylinder gasoline engine developing 185 hp. at 1,300 r.p.m., together with a 6-cylinder 75 hp. Buda engine that serves as a standby or auxiliary unit.

Operating Control

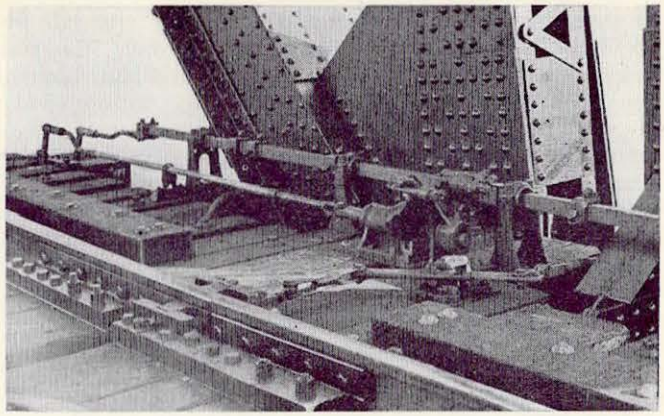
The manner of interconnecting these two power units to the operating cable drums and of interlocking the various operating functions and traffic control is simple and effective. The application of the power from the two engines through a train of gears to the drum is controlled by four levers, namely one lever to the clutch on each engine, a transmission lever (three-position—up, down and neutral) and a lever connected with a brake of the band type on one of the gear shafts.

Both engines are equipped with electric-motor starters operating on 12-volt current from a storage battery charged by a Northeast Electric battery-charging generator set. The Buda engine is also equipped with a high-tension magneto, so that it may be started by hand cranking in the event of current failure, and by throwing in both clutches it can be used for starting the large engine. With the transmission lever in either the "up" or "down" position a limit switch is thrown into the ignition circuits of both engines so that the current is broken as soon as the span has moved to within five feet of the fully open or closed position. To continue movement beyond these points, the operator must step on a foot switch to restore the ignition circuit.

Interlocking

Train movements across the bridge are controlled by home and distant signals through a General Railway Signal Company electro-mechanical machine in a four-lever mechanical frame in which four mechanical and two electric levers are used. The electric levers control the indications of the home signals, the operation of the distant signals being automatic. The home signals are normally at stop position, an annunciator being provided to indicate the approach of a train, so that signals may be set to clear. A time release requires a wait of two minutes before the signal can be changed to the stop position, to prevent an immediate change in the line-up after signals have been cleared for the passage of a train.

The four mechanical levers, in the order in which they are moved preparatory to opening the bridge, are: A circuit-breaker lever for the signal circuits at each end of the span; two rail-lock levers, one for each end of the span; and a bridge-alinement lever which checks both vertical and horizontal alinement. The last of these functions is also interlocked with the bridge-raising machinery through the agency of a plunger lock on the transmission lever.



The Rail Lock and the Bridge Alinement Lock on the Lift Span

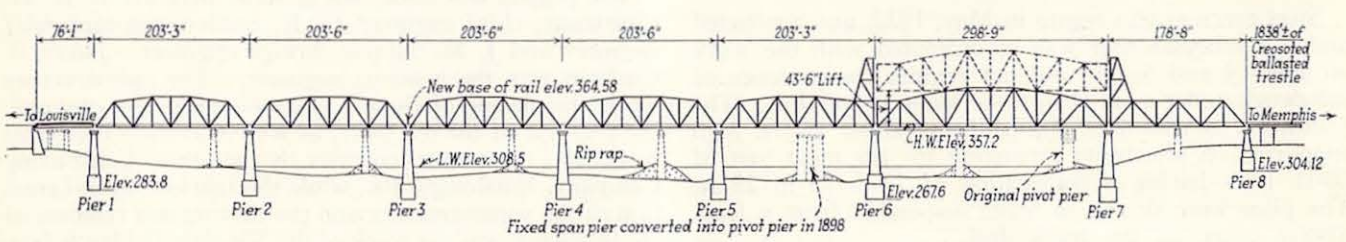
Other Features of Lift Span

Among other features of the lift span that are worthy of mention is the elimination of equalizers for the ends of the counterweight cables, which were cut to length by the manufacturer under uniform tension and were set in sockets rigidly connected to the loading members of both the lift span and the counterweights. An ingenious scheme was also introduced for taking up slack or otherwise adjusting the length of the operating cables. Instead of being attached directly to structural members at the tops of the towers, the upper ends of the operating cables are secured to drums which may be wound or unwound manually by small amounts by applying a large wrench at the end of a worm that engages a gear attached to the drum shaft.

The Rail Lock

The rail lock, as shown in one of the illustrations, is of the plain butt type. The rails on both the fixed and movable spans are supported in chairs that are bolted to the ties. Special forged side plates, which are bolted against both sides of the web of the rail on the movable span, are equipped, on the portions that overhang the fixed span, with heavy vertical lateral ribs that fit into corresponding recesses in the chair that supports the fixed-span rail. These ribs and recesses are beveled so that entrance of the ribs into the recesses as the rail comes down with the span serves both to line the track and move the lift-span rail longitudinally to correct changes in position due to temperature effects that may take place while the span is in the raised position. A switch point in the rail on the lift span adjacent to the rail lock facilitates such adjustment.

The floor system of the bridge is of the conventional type, supporting an open floor with creosoted ties, inside T-rail guard rails and wooden outside guard rails, which, instead of being placed at the ends of the ties are set



General Elevation of the New Bridge, Showing the Location of the Old Piers

so that the inside faces clear the ball of the rail by 10 in. To increase resistance to corrosion, the top flange angles or cover plates of stringers and floor beams, the stringer lateral system, portals and the bottom struts of sway bracing were made of copper-bearing steel (minimum 0.2 per cent of copper), and following the standard practice of the Louisville & Nashville of providing maximum protection against the corrosive action of brine drippings, the tops of all floor beams and stringers were covered with creosoted protection timbers sheathed with sheets of No. 16 gage galvanized metal of either Armco or Toncan brands.

An interesting departure is to be noted with respect to the painting of the bridge, which has been worked out to provide a comparative service test of three types of second field coat. The shop coat throughout was red lead, followed on all spans by a first field coat of Detroit Graphite 500 (brown), while the final coat on the lift span is aluminum paint, on one of the fixed spans it is Duco lacquer and on the others it is Detroit 30.

Pneumatic Foundations

The bridge substructure consists of eight piers and one (the north) abutment, the river crossing being flanked at the south end by a long creosoted timber pile trestle. Because of the depth of suitable foundation below water level (the maximum was 41 ft. below low water on the gage) the pneumatic process was employed to a greater or less extent on all eight piers, while the abutment footing was constructed in an open coffer dam. However, all of the piers were sunk in part by open dredging through wells which were subsequently equipped with the air locks for completing the excavation under pressure. In fact, in the case of Pier 8, which has a much shallower foundation than the others and is in ground that is well above low water level, air was applied only long enough to permit the sealing of the working chamber.

The caissons for Piers 1, 7 and 8, which are normally above water level, were constructed of reinforced concrete in place, while those for the other five piers were built of steel at Pittsburgh, Pa., and towed down the Ohio and up the Tennessee to the bridge site on barges. The largest caisson was 23 ft. wide by 45 ft. long. The maximum air pressure employed was about 25 lb. per sq. in.

The foundation work was started in the spring of 1931, on a schedule that provided for the completion of all of the piers except No. 4 and No. 5 that year, but because of the rapid progress made, permission was obtained from the war department to proceed with the work on the remaining two piers. This had to be suspended, however, on account of high water in December and could not be resumed until June, 1932. With the exception of the abutment and Pier 8, the substructure footings are supported on solid rock, a blue-gray flint. The overburden encountered varied from sand and mud to clays of varying degrees of hardness and in one case to as much as 10 ft. of seamy and broken rock.

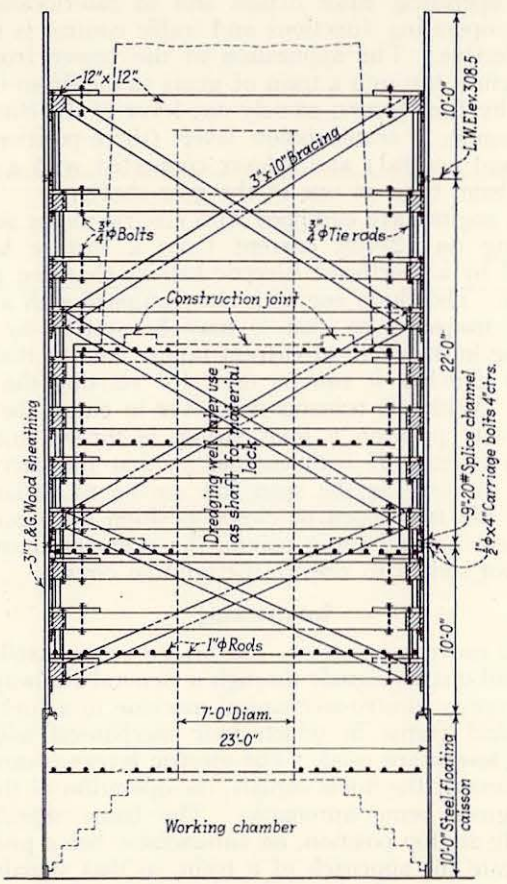
Erection on Falsework

Steel erection was begun in May, 1932, and conducted under a schedule that was co-ordinated with the work on Piers 4 and 5, and did not require the presence of falsework under more than three spans at one time. The falsework consisted of frame bents about 24 ft. high supported on pile bents consisting for the most part of 60-ft. piles having a penetration of from 15 to 25 ft. The piles were driven in leads suspended from a locomotive crane on the track deck.

Under Span 1, bents were driven under the panel points of both the new and old spans, but for all other spans bents were driven only under the panel points of the old spans, and stringers released from the old spans, as removed, were placed on the caps of the bents to provide support at any longitudinal point as desired.

Little Interference With Train Operation

The location of the lift span overlapped the south leg of the old swing span by a distance of about 110 ft. and it would have been impossible to devise any reasonably practical plan that would have permitted draw-span operation during the erection of the lift span. This situation was recognized by the war department in granting the railway authority to discontinue movable-span operation during a period of 120 working days during erection. All of the old steel was cut apart with the



Cross-Section of the Caisson and Crib for One of the Piers

burning torch, except the two south spans, erected in 1908, which were salvaged for use elsewhere. Erection involved no interference with train operation except that on days when it was desired to change out the floor system, arrangements were made to avoid freight-train movements between the times of noon and evening passenger trains to allow about five hours time for replacement of about three panels of the floor.

The project was under the general direction of W. H. Courtenay, chief engineer, G. R. Smiley, assistant chief engineer and J. M. Salmon, bridge engineer. James B. Cochran was the resident engineer. The sub-structure work, the placing of the lift span counterweight concrete, the removal of the old piers, as well as certain incidental work, was done under contract by the Dravo Contracting Company, Pittsburgh, Pa., while the fabrication and erection of the superstructure and the driving and removal of the falsework was the work of the Virginia Bridge & Iron Company, Roanoke, Va.

Damage Occurs When No Attempt Is Made to Separate Light Commodities From Heavy

Meeting of Freight Claim Division Held at Louisville

Improved methods for adjusting freight claims and eliminating discrimination adopted by railroads

A FURTHER improvement in freight claim adjustments has been made possible by the action of the Freight Claim division of the American Railway Association at its annual meeting at Louisville, Ky., on June 6-8 in adopting a code of principles and practices which will result in more uniformity in practice among the carriers, eliminate discrimination, bring about more thorough supervision of claim settlements and provide for an advisory committee of railway counsel. The action taken by the meeting, over which Chairman H. J. Freeman, freight claim agent of the Pennsylvania presided, is the result of a letter sent by R. H. Aishton, chairman of the board of the American Railway Association, when he was president a year ago, to all divisions and sections asking for recommendations for improvement in operations and economies. The proposals made to Mr. Aishton by the General committee of the Freight Claim division covered the establishment of (a) a code of principles and practices for the settlement of freight claim payments, (b) the setting up of an advisory committee of counsel to co-operate with the General committee in the maintenance and operation of such a code, and (c) the consolidation, in the interest of economy, of the present Committee on Loss and Damage Rules, the Committee on Overcharge Rules and the Joint Committee on Loss and Damage and Overcharge Rules into one Committee on Freight Claim Rules of 12 members, instead of a combined membership of 20 in the present committees. The plan was approved by the board of directors of the American Railway Association on April 27 and also by the Presidents' Conference committees.

The plan also provides for the establishment, on a uniform basis at the principal market points throughout the country, of standard practices in the inspecting, recoopering and handling of salvage in connection with fresh fruit, melon and vegetable traffic, and provides that the number of inspection services used by the carriers be restricted to two, one in the East and one in the West, so as to bring about uniformity of operation at individual market points as well as among market points in each territory. These bureaus are now being set up.

In connection with this plan, the association also voted to establish and assign to the Freight Claim division a general supervision of the perishable inspection activities, with a view to securing the uniform preparation of exception reports, the uniform use of descriptive terms, the proper salvaging of damaged packages and the endorsement of proper and accurate notations on documents showing the actual condition of freight upon delivery at destination.

W. R. Cole and M. J. Gormley Speak

The program for the meeting included reports of various committees and addresses by W. R. Cole, presi-

dent of the Louisville & Nashville; H. J. Freeman, chairman of the Freight Claim division; and M. J. Gormley, president of the American Railway Association. Mr. Gormley also spoke before a shipper-carrier joint luncheon given by the Louisville Transportation Club.

Officers elected for the ensuing year are as follows: Chairman, H. M. Moors, freight claim agent of the Texas & New Orleans; first vice-president, J. L. McCormack, superintendent of freight loss and damage claims of the St. Louis-San Francisco; and second vice-president, W. C. Johnson, freight claim agent of the Chicago & North Western. The members selected New York as the place for the next annual meeting, the holding of the meeting and the date being subject to the discretion of the General committee.

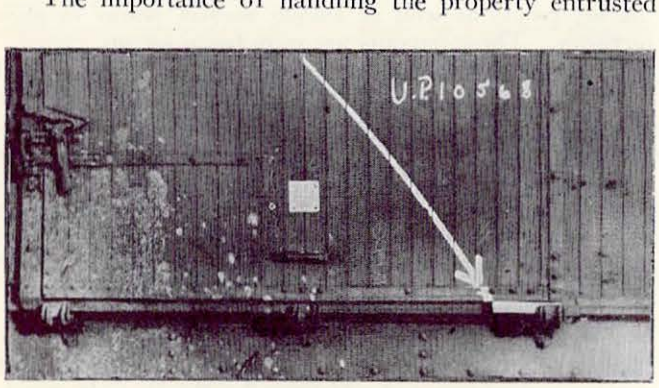
Mr. Cole discussed the railroads' problem in general and the appointment of a co-ordinator for all railroads in particular. One of the inconsistencies of the new legislation, according to Mr. Cole, is the provision that empowers the co-ordinator to discontinue unprofitable trains, but at the same time prevents him from laying off the employees whose positions would be abolished by such action. He also discussed the excessive claims paid on fresh fruits and vegetables during the past few years.

Mr. Gormley forecast the establishment of fair competition as a governmental policy in the future and a revival of prosperity. He also spoke on waste prevention, citing records made in reducing expenses. "I believe," he said, "that possibilities of elimination of waste are great, if not greater, in the field of capacity utilization of equipment than in any other direction. Despite the very greatly decreased business and the desire of merchants and jobbers to carry the very lowest possible stocks, the tons per car of carload traffic has held up remarkably well. A great deal of traffic lends itself to capacity utilization of equipment, and the securing of heavy loading with such commodities is largely a question of the education of shippers and receivers to its advantages in reducing the number of cars on hand at their plants for loading and unloading, and the possible reduction in demurrage on that account."

He suggested that possibly the time has arrived for an extensive investigation by the roads to determine if it is not possible to eliminate a considerable part of preventable waste by applying a reduced rate to the heavier load. "It would mean," he said, "variable rates with variable minimums."

Chairman Freeman reviewed the satisfactory relationship that has been developed between the shippers and the railways through the Freight Claim division, appending his remarks with the statement that the carriers must exert every effort toward the encouragement of sound business relations with the public in view of the present interruption of business and the increased activities of other methods of transportation.

"The importance of handling the property entrusted to their care in a manner that will furnish proper and safe transportation and a good delivery at destination cannot be overemphasized," he said. "Through your efforts in making the facts available to both the shippers and the carriers, we have made splendid progress in enlisting the support of both. This co-ordination of relative activities has shown its effect in the loss and damage account, which shows a reduction of $6,900,000 for the year, the lowest since 1904."



A Simple Wedge for Holding Car Doors Against the Frame

Freight Container Bureau Has Exhibit

Prefacing the "special order of business," which embraced a discussion of the prevention of freight loss and damage, carload damage, damage to fresh fruits, melons and vegetables, and innovations in packing and loading of freight, introductory remarks were made by Joe Marshall, F. E. Winburn and A. L. Green, special representatives of the division. Practical prevention methods were illustrated by an exhibit prepared by the Freight Container Bureau of the American Railway Association, the exhibit including a large number of small model crates and boxes, both wooden and fibre, portraying the several types of packages and methods of construction. There were also displayed a number of models showing methods of packing stoves and furniture in standard crates, a model showing the "snubbing principle" applied to the loading of machinery, a model showing the principles of bracing loads in box cars, a model showing the unit tying of barrels by means of steel strapping, and several displays and charts of packing accessories. The exhibit was prepared as a guide to certain fundamental principles to be used by the shipper in designing containers and to the proper procedure in loading and stowing these containers in freight cars.

Marshall Discusses Carload Damage

Joe Marshall, in introducing the discussion of carload damage, outlined the magnitude of this type of damage and offered suggestions for its elimination. He said, in part:

The outlay for loss and damage in the United States in 1920 was $119,833,127; in 1932 it was $18,471,957. In Canada the total was $5,757,564 in 1920; in 1932 it was $910,000. Thus, we have taken $106,208,734 from the total bill in 12 years. That sounds well until you learn that in the 12 years since 1920 we have charged $519,527,368 to loss and damage, and Canada has charged $26,535,667.

During the three depression years, 1930-1931-1932, we loaded 111,326,866 cars, of which 82,988,329 carried claim-producing traffic. We received 5,990,709 claims during that period, so we handled at least 77,000,000 cars of claim-producing traffic without any claims at all. My studies indicate that about 43 per cent of these claims apply to carload traffic; therefore, we hauled at least 48,000,000 carloads without damage. If that is not wonderful, it is good enough to offer the critics.

Because of the inherent natures of shipper and consignee, damage to carload shipments is difficult to control and calls for special measures. But a guiding principle in prevention work should be that of keeping everybody interested in the easy items, best subject to control, in order to offset possible increases or slow reduction in the difficult items. A lot of the money we pay out is not paid because we owe it, but because we cannot show that we don't owe it. We will pay less when claimants understand what actually caused the damage and when they realize that we know the actual cause.

Many Shippers Have Few Claims

However, many shippers have very few claims and some have developed very efficient methods of loading their products; many of these methods will fit other products, if known and applied. The widely scattered and diverse nature of the business handled by individual shippers and the great number of factors and units involved makes it difficult to spread the knowledge of safe

loading practices and all it entails, and has wholly submerged the pitiful efforts of writers and rule makers to cover the ground, and proves that we cannot hope for success by the sole process of laying down certain fundamentals for general application to the tens of million of cars loaded in this country and Canada each year. What we really need is more exchange of experience. This exchange of experience must start at destination where we must be able, from the appearance of the load, to determine whether the damage results from improper loading or stowing, improper bracing or stripping, insufficient containers, rough handling in transit or inherent vice.

You have recently received Freight Claim Prevention Bulletin No. 411, outlining a carload claim prevention plan. Probably your first thought when reading this was that many roads are doing this very thing, which is true, but without a national plan there is no method whereby one road or one shipper may profit by the experience of another. The National committee believes that the freight claim man can get results in relation to reduced carload damage equal to that secured in relation to losses. It will be more difficult because it involves closed cars.

The committee recommends that each railroad maintain a separate record of carload damage payments, to permit a separation by shipping points, commodities and shippers. The important benefits will flow from this record. You will have a ready reference record so that you and the claim prevention officers will have knowledge of the high spots, or recurring troubles at each shipping point and with each shipper. The committee will be in position to use your information as talking points with shippers and trade associations, and the committee proposes to make a strong bid for shipper co-operation. The committee further recommends that each member carrier delegate to some representative the responsibility of studying these high spots and applying corrective measures. The committee proposes to arrange a method of increasing the knowledge of these representatives by gathering special information and consolidating the experience of all for the benefit of each. The same method will be followed with respect to shippers. An earnest effort will be made to make available to you the best methods used by progressive shippers to overcome the many different causes of damage.

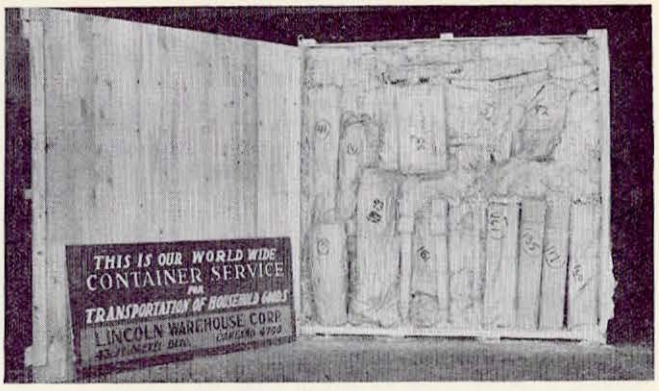
Why $8.65 Per Car of Fresh Fruits and Vegetables?

F. E. Winburn, in discussing damage to fresh fruits, melons and vegetables, dealt specifically with the causes contributing to the excessive claims paid on these commodities.

Loss and damage in 1932, he said, is the lowest since 1904 and while this fact is encouraging, the possible minimum has not yet been reached. If carriers can handle merchandise at a loss and damage cost of 45 cents per car and all other commodities in carloads at a cost of 42 cents per car, why is the cost per car on fruits, melons and vegetables $8.65? This group of commodities represents only 3 per cent of total cars originating with carriers and yet is consuming 48.6 per cent of the total loss and damage on all carload traffic. For more than 12 years your Committee on Freight Claim Prevention has been asking the same question—at the same time stressing upon all lines, individuals and agencies, the great need for remedial action.

To say that there was indifference or lack of interest on the part of anyone would be unjust criticism, for the subject has been given the most serious consideration. But views have differed as to who was responsible, and how the troubles could have been corrected. Those at origin points have contended, and with much merit, that the greater part of the evil was chargeable to destination conditions. On the other hand, those at destination have blamed the bulge pack, frail containers, loose loading and other defects at initial points as the real cause for abnormal loss and damage. Your committee, through the many years, has listened to these arguments patiently and sympathetically, realizing all the time that both were equally right and at the same time partly wrong. Other factors of a hidden nature were contributing to such an extent that legitimate prevention efforts were seriously handicapped.

About four years ago your committee made an appeal, through the General committee, to the executives for assistance in bringing about a satisfactory solution of the problem. At a special meeting of the American Railway Association at Chicago in May, 1930, we were privileged to present to the assembled railroad executives our views concerning the need for uniform



A Large Container Is Now Used for Shipping Household Goods

practices at destination points in connection with inspections, recoopering, salvaging and waybill notations. Prior to the special meeting, in conjunction with the operating division of the A.R.A., a definite program had been agreed upon for the things needed, the success of such program depending upon concerted action, as contrasted to the varying and conflicting practices in effect with the individaul lines and their inspection agencies.

The problem divides itself into two distinct phases, protection and prevention. It was made clear that fulfillment of the desired program at destination was needed largely for protective purposes, namely, the correction of those abuses which were the natural outcome of a failure to stand together.

Failure to secure results at destination points in the past has been chargeable to lack of uniformity in practices, due in a large measure to competition between the individual lines. It is clear that this same condition exists at origin points, but in addition to competition between individual lines there is competition between territories. Experience has shown that one or more loading territories have shown a willingness to apply corrective measures in connection with a much-needed improvement, but the failure of a competing territory to acquiesce in the proposed change creates a handicap and often a deterrent to the accomplishment of the results desired. This brings us to the crux of the whole problem—the imperative need for uniformity at all loading points. Can this be accomplished by present methods?

The policy of admitting that all cars are properly loaded and the assumption of liability for all classes of loads, regardless of practices on the part of shippers not in conformity with best principles, is unsound and in due time will have to be revised. If a bulge of 1½ in. on packages of certain fruits or vegetables is recognized as good trade practice, the shipper who persists in resorting to an excessive bulge, in many instances amounting to 4 or 5 in., should be denied equal protection from damages resulting therefrom. If a shipper is careless in stripping his packages or fails to heed the request for protective measures to insure a tight load, thereby preventing one of the greatest evils experienced, shift, he should be denied remuneration for the resulting damage.

Many Packing and Loading Innovations Effective

In discussion innovations in packing and loading of freight, A. L. Green described several practices that have been successful in eliminating damage. His paper, in part, follows:

With gross earnings of approximately $1,000,000 a year by one trucking organization alone that has member household goods warehousemen in all principal cities, and with probably 50 per cent of all carload business up to 1,000 miles lost to the trucks, a railroad man who expects to see this traffic back on the rails could pass as an optimist anywhere. But that is just what is occurring. It appears that no trucking rates were so low but that someone was willing to take less, and as a result of long-continued and vicious rate-cutting, nobody made any money on intercity removals. Moreover, the warehousemen used to do a nice business in their packing departments, but that just about vanished when the long-haul truck gobbled up the removals. Now, the warehousemen say, give us lower freight rates so we can compete with the unorganized truckers, and we will restore

a lot of this traffic to the rails on hauls of 500 miles or more.

The situation has been altered by the development of a new type of container. With a limited amount of padding or wrapping on household good, they may be packed snugly into a packing box almost as large as the average van. This box, which may have a capacity of from 300 to 500 cu. ft., is handled in and out of cars on rollers, frequently by the movers themselves. In addition, the rates have been reduced, and more than a thousand long-haul shipments packed in these large boxes or crates have moved by freight. So far, very few damage claims have been reported. Warehousemen say it is mutually beneficial; they get the packing and city hauling business back, and the railroads regain a low-cost, long-haul traffic. They say also that a very considerable part of the trucking business, such as the New York-Chicago hauls should return to the rails because this method is quicker and cheaper than any trucking concern can offer. Where speed is essential, a shipment from New York can be delivered by express to the consignee in Chicago, for example, in 24 hr. after its receipt from the shipper.

The weakest part of a box, crate or freight brace is the nailed joint. Cement coating of nails is generally credited with increasing their holding power from 30 to 40 per cent. This is probably true of the smaller sizes used in egg cases and fruit and vegetable crates. At any rate, the behavior of boxes nailed with common nails and with cement-coated nails in laboratory testing shows that the coated nail is decidedly superior. Recently a canvass to find out why freight braces failed showed that inadequate and poor nailing were important causes. Also, inquiries of the leading nail manufacturers disclosed that, outside of a few automobile shippers, there was virtually no demand for cement-coated nails in the sizes commonly used for freight bracing.

Adequate data on the comparative holding power of the several kinds of friction nails have not yet been developed. Tests in a railroad research laboratory are under way and we expect shortly to have further information on sand-blasted, acid-etched, cement-coated and common wire spikes. In a test of five 20-d spikes driven into pine, it took an average pull of 1,010 lb. to extract acid-etched spikes compared with an average of 452 lb. to pull ordinary bright spikes. The acid-etching process was developed by the Forest Products Laboratory and is not patented. Nails so treated cost about $1 per keg more, but if a number of large shippers could be induced to use this nail, the production costs would be reduced and the price would probably drop accordingly. An investigation should be made to determine how many nails and what sizes should be used to give maximum results with the least cost and damage to equipment, and the greatest facility in the application of the bracing. Balanced strength between the lumber and nailing is of fundamental importance, and yet there is nothing in print which tells a shipper just how a given brace should be nailed. There is, as we all know, great variation in the strength and efficiency of bracing, especially as to the nailing.

During the past year refinements in the floating or semi-rigid load have been made. Thus far the experience has not gone much beyond skid paper and tin plate, but it bids fair to extend to a number of commodities. A mastic or asphaltum composition is used as a friction or non-skid pad. It is molded into thin strips and the amount needed can be cut off as used. In the loading of skid paper, a small piece of the material is placed under each skid or leg, or under a sufficient number to retard shifting of the heavy skids to the degree required. The material spreads out under load pressure and acts as a powerful adhesive and resistant to movement of the skid. Under impact tests, skid paper, shifted a very few inches—just enough to take up the shock—when the test car was struck at 8 or 9 miles an hour. Besides being exceedingly cheap, the method saves time in loading and unloading, no bracing or strapping being necessary. In other words, immediately upon opening the car door, the lift trucker can start unloading. So far, approximately 500 cars of skid paper have been loaded this way, with little or no damage. A more inexpensive and efficient method of loading tin plate is being tried, on quite similar principles, but mechanical means instead of an adhesive material are employed.

An economical and very effective practice in the weather-proofing of car doors—especially doors on the older equipment which are likely to fit loosely—has been followed for some time by shippers of beet sugar, lump corn sugar, shelled peanuts, flour and a few other products liable to damage by cinders, snow and rain working in around car doors. Weather-proof paper, lath, wedges and cleats are applied so as to wedge the doors tightly against the door frame at the top, bottom and sides. Two wedges are driven between the door track and the top of the door to take up the slack at the top. A cleat is placed at the rear of the door to hold it against the door jamb, and a wedge is driven behind the door hasp and the bottom door guide or guides to force the door snugly against the frame all around.

Recently shippers have been taking an increasing interest in methods of determining whether they are getting their money's worth in the containers they buy. Until a comparatively short time ago, laboratory technic had not been developed which would enable a shipper to learn the difference in the service qualities of two boxes of the same dimensions. The shipper had only the salesman's representations to depend on and all too frequently, even the salesman knows very little about the points on which a container should be judged. It is now possible to obtain the services of a disinterested expert in the commercial laboratory. His tests may show, and often do, that it is the fabrication and workmanship that makes one box superior to another; and that there is an art in making fibre boxes which all makers have not mastered in like degree.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended June 3 amounted to 508,234 cars. Because of the holiday on May 30 this was a decrease of 33,075 cars as compared with the week before but it exceeded the total for the corresponding week of last year, which also included a holiday, by 60,822 cars. This was the fourth consecutive week in which this year's figures have exceeded those for the corresponding weeks of last year. All commodity classifications except l. c. l. merchandise exceeded last year's figures and forest products and coke showed increases as compared with the week before. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, June 3, 1933

Districts	1933	1932	1931
Eastern	114,085	99,555	168,965
Allegheny	94,370	85,488	152,937
Pocahontas	35,776	29,140	41,561
Southern	82,250	73,015	111,164
Northwestern	64,886	53,790	110,694
Central Western	71,002	67,082	108,738
Southwestern	45,865	39,342	67,025
Total Western Districts	181,753	160,214	286,457
Total All Roads	508,234	447,412	761,084
Commodities			
Grain and Grain Products	34,204	23,305	34,429
Live Stock	15,133	14,400	18,059
Coal	78,632	63,096	107,684
Coke	4,591	3,011	5,959
Forest Products	22,783	16,419	33,175
Ore	8,517	2,185	30,750
Mdse. L. C. L.	147,992	154,810	224,031
Miscellaneous	196,382	170,186	306,997
June 3	508,234	447,412	761,084
May 27	541,309	521,249	711,249
May 20	531,618	515,628	754,738
May 13	531,095	517,260	747,057
May 6	523,819	533,951	745,740
Cumulative total, 22 weeks	10,850,499	12,100,463	16,121,989

The freight car surplus on May 14 amounted to 581,956 cars, a decrease of 36,908 cars as compared with the number on April 30. The total included 293,573 box cars, 220,589 coal cars, 28,802 stock cars and 13,112 refrigerator cars.

Car Loading in Canada

Car loadings in Canada for the week ended June 3 increased from 32,361 cars for the previous week to 38,914, or by 6,553 cars. The index number rose from 57.71 to 61.63.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
June 3, 1933	38,914	17,146
May 27, 1933	32,361	17,760
May 20, 1933	35,735	18,315
June 4, 1932	42,614	16,239
Cumulative Totals for Canada:		
June 3, 1933	744,382	382,059
June 4, 1932	912,850	460,432
May 30, 1931	1,054,264	620,378

Congress Passes Railroad Bill

Calls for co-ordinator with broad powers, ends recapture and makes new rule for rates

By Harold F. Lane,
Washington Editor, the Railway Age

WASHINGTON, D. C.

PRESIDENT Roosevelt's Emergency Railroad Transportation Act, 1933, providing for the appointment of a Federal Co-ordinator of Transportation to encourage and, perhaps, prod the railroads into effecting certain carefully restricted economies by eliminating so-called "competitive wastes," together with its recapture-rate-making-holding company-consolidation appendix, was finally passed by both the House and the Senate on June 9. The action in Congress on that day was merely to accept the conference report reconciling the differences between the House and Senate versions of the bill, which omitted some of the most violent amendments adopted during the debate in the Senate and included some slight compromises.

The President was expected to announce, as soon as he signed the bill, the appointment as co-ordinator of Commissioner Joseph B. Eastman of the Interstate Commerce Commission, who for a couple of years had been one of the chief proponents of the idea that the railroads ought to co-operate more and compete less, and who for the last three months has been engaged in trying to shape legislation that would provide a way for relieving them of some of the practical and legal restrictions that had kept them from following some of his advice. Although he has been in most of the conferences through which the bill has evolved since March, including the final sessions of the conferees, and although he has been generally approved as well as accepted as the only prospect for the office of co-ordinator, Congress has not always accepted his advice and he has witnessed a gradual development of a network of restrictions around the vague powers conferred by the bill on the co-ordinator written at the suggestion of the railroad labor organizations and the state commissioners who wanted a Czar for the railroads but a deputy for themselves, until a measure generally described in the press as a "railroad relief bill" has been transformed into a "great victory for labor."

It is understood that the railroads are relying more on the increase in carloading that has begun in recent weeks to help them to earn their fixed charges for 1933 than upon the economies to be effected in the near future by co-ordination. They also expect to be relieved of considerable sums of expense incident to the process of being valued and recaptured as a result of the permanent amendments to the interstate commerce act contained in the second part of the new law, although few of them will find many tangible dollars released to them by the scrapping of the numerous tentative recapture reports and other data from which the commission's bureaus have made the rough estimate of $342,000,000 of possible recapture liability for the period since 1920.

Since the R. F. C. also has the power to authorize or decline a loan after the I. C. C. has approved it, it will share in the new power over the railways, as indicated by its recent announcements regarding the attachment of conditions as to salaries to its loan authorizations, and altogether the co-ordinator, the commission and the R. F. C., (which will largely be represented as to railroad matters by Prof. A. A. Berle, special advisor to the directors, who also has some ideas about reorganizing the railroads) by working together, will doubtless be able to exercise control over the railroads in several ways. Therefore the result of the temporary legislation may well be that the roads will find themselves gripped more tightly than ever within the fostering control and guardianship of the federal government, long before there is an assurance of any permanent improvement in the regulatory situation.

Although the bill was intended only as a temporary measure to bring about some improvement in the railroad situation pending the development of a plan for permanent transportation legislation to be considered at the next session of Congress, the fact that it also includes two bills that had previously been reported by the House committee, but had not been considered in the Senate under Senator Couzens' chairmanship of the committee on interstate commerce, makes the bill a fairly comprehensive one after all. It contains at least eight distinct features:

Features of the Act

1. Provision for the appointment of a federal co-ordinator and regional co-ordinating committees to effect such economies as may be made without reducing (railroad) employment, and for relief from many legal restrictions which now tend to promote expensive competitive duplication of expense.
2. A method for forcing financial reorganization of railroads requiring loans from the Reconstruction Finance Corporation.
3. Provision for an immediate study by the co-ordinator of means for improving transportation and labor conditions.
4. Repeal of the fair-return rule of rate-making of which the recapture clause was a part.
5. Substitution of a "flexible" rule of rate-making naming general factors to be considered by the Interstate Commerce Commission in prescribing rates.
6. Extension of the jurisdiction of the Interstate Commerce Commission over all forms of acquisition of or common control of railroads.
7. Regulation of the accounts and capitalization of holding companies that may be authorized to acquire control of railroads.
8. Bringing to a head of the I. C. C. valuation of railroad property with provision by which the commission will keep itself informed of changes and have data on which to base revisions when needed without the requirement of yearly revisions.

Following is a summary, by sections, of the emergency part of the bill, Title I:

Section 1 defines the terms "Commission", "Co-ordinator", "committee", "carrier", "subsidiary", "employee", and "State commission."

Section 2 states the purposes of Title I which are to foster and

protect interstate commerce in relation to railroad transportation by preventing and relieving obstructions and burdens thereon resulting from the present acute economic emergency and by safeguarding and maintaining an adequate national system of transportation and creates therefor the office of Federal Co-ordinator of Transportation and provides for his appointment by the President, with the advice and consent of the Senate, or his designation by the President from the Interstate Commerce Commission.

Section 3 directs the co-ordinator to divide the carriers into three regional groups and the carriers in each group to designate five representatives who shall be the regular members of a regional co-ordinating committee. The railroads other than class 1 of a region may designate a representative, and the electric railways not owned or controlled by a steam railroad may designate a representative, who shall be special members of the regional co-ordinating committee.

Section 4 states the purposes of the title: First, to promote economies and avoid unnecessary waste and preventable expense; second, to promote financial reorganization of the carriers; and, third, to provide for the immediate study of other means of improving conditions surrounding transportation in all its forms and the preparation of plans therefor.

Section 5 makes it the duty of the committees representing the carriers within each group, and jointly where more than one group is affected, to carry out the provisions of the title; and directs the co-ordinator to give appropriate directions by order in such instances as the committees are unable for any reason, legal or otherwise, to carry out the purposes of the title by voluntary action.

Section 6 requires the co-ordinator to confer freely with these regional committees and to give them the benefit of his advice and assistance. Where a committee fails to act the co-ordinator may act on his own initiative. The co-ordinator is empowered to call for information and reports from the committees themselves, the carriers, and the Interstate Commerce Commission.

Section 7 consists of five paragraphs, (a), (b), (c), (d), (e).

7 (a) authorizes for each regional group of carriers one labor committee representing the standard unions and another labor committee representing other labor organizations which may be designated and authorized to represent employees in accordance with the requirements of the Railway Labor Act. Both the regional co-ordinating committees representing the carriers and the co-ordinator are required to give notice to and to confer with the appropriate labor committee or committees, and hear their views prior to taking any action or issuing any order which will affect the interests of the employees.

7 (b) is as follows:

> (b) The number of employees in the service of a carrier shall not be reduced by reason of any action taken pursuant to the authority of this title below the number as shown by the pay rolls of employees in service during the month of May, 1933, after deducting the number who have been removed from the pay rolls after the effective date of this act by reason of death, normal retirements, or resignation, but not more in any one year than 5 percent of said number in service during May 1933; nor shall any employee in such service be deprived of employment such as he had during said month of May or be in a worse position with respect to his compensation for such employment, by reason of any action taken pursuant to the authority conferred by this title.

7 (c) requires the co-ordinator to establish regional boards of adjustment for the settlement of labor disputes, arising under this title, in the manner provided by the Railway Labor Act.

7 (d) provides for compensation to employees for property losses and expenses imposed upon them by reason of transfers of work from one locality to another incident to carrying out the purposes of this title.

7 (e) is drawn to strengthen the enforcement of the Railway Labor Act and discourage the use of "yellow-dog" contracts.

Section 8 provides that not less than 20 days shall elapse after the publication by the co-ordinator of an order before it becomes effective.

Section 9 provides that any interested party (including any carrier, shipper, employee, state commission, the governor of any state, or representative of any political subdivision of a state) may appeal to the Interstate Commerce Commission for a review of an order issued by the co-ordinator. If the commission grants such a review, it may in its discretion suspend an order if it finds that the immediate enforcement would result in irreparable damage to the petitioner or would work grave injury to the public interest. The commission is called upon to expedite its hearings if it suspends an order.

Section 10 provides for the suspension of the antitrust laws and of all other restrictions or prohibitions of state or federal authority except laws for the protection of the public health or safety and the requirements of the Railway Labor Act so far as necessary to carry out orders issued under this title. (*b*) of this section requires the co-ordinator to advise a state commission or the governor of a state before he issues any order relieving any carrier from the operation of a law of the state or an order of the state commission.

Section 11 provides that nothing may be done under this title to relieve any carrier from any contractual obligations which it may have assumed with regard to the location or maintenance of offices, shops, or roundhouses, at any point.

Section 12 provides for penalties of not less than $1,000 or more than $20,000 for each day that an order of the co-ordinator is violated by a carrier, or any officer or employee of a carrier. It further provides that no one may be required by such an order to render labor or service without his consent.

Section 13 directs the co-ordinator to investigate and consider means not provided for in this title of improving transportation conditions throughout the country. It is drawn to carry out the third purpose of the title as stated in section 4.

Section 14 provides that the expenses of the co-ordinator shall be borne from a fund to be collected from the carriers on the basis of $1.50 for every mile of road operated on December 31, 1932, and provides that the co-ordinator and members of his staff may receive free transportation from the railroad and Pullman companies.

Section 15 is drawn to carry out the second purpose of the title as stated in section 4. The commission shall not approve a loan to a carrier under the Reconstruction Finance Corporation Act as amended if it is of the opinion that the public interest requires the financial reorganization of the company, provided that this limitation does not apply to a receiver or trustee of a carrier.

Section 16 provides for court review of orders and for expediting the determination of questions taken to the courts.

Section 17 provides that this title shall cease to have effect at the end of 1 year unless extended by proclamation of the President for 1 year or any part thereof. Orders of the co-ordinator or the commission made under this title shall continue in effect until vacated by the commission or set aside by other lawful authority.

Cost "Finding" Study Ordered

The investigation to be made by the co-ordinator is to include "cost finding in rail transportation and the ability, financial or otherwise, of the carriers to improve their properties and furnish service and charge rates which will promote the commerce and industry of the country and including, also, the stability of railroad labor employment and other improvement of railroad labor conditions and relations."

The final text of the bill was unanimously agreed to on June 8 by the conferees, Senators Dill, Smith, Wheeler, Fess and Metcalf, and Representatives Rayburn, Huddleston, Lea, Parker and Cooper, appointed after the bill had been originally passed by the Senate on May 27 and by the House on June 5. The conferees met on June 7, with Commissioner Eastman and Dr. W. M. W. Splawn also in attendance, and again on June 8, and their report was accepted on the following day by both houses without further discussion. The House had struck out all of the Senate bill after the enacting clause and adopted its own bill as an amendment. By adopting the conference report the Senate receded from its disagreement to the amendment of the House with an amendment which was a substitute for both bills.

By the action of the conferees there was eliminated from the bill the amendment offered in the Senate by Senator Norris, adding to the new rate-making rule a provision that "no such rate shall be greater than will be sufficient to produce a fair and reasonable return upon the prudent investment in the property less depreciation, or upon an investment necessary to reproduce the property," and one offered by Senator Trammell, prohibiting rate increases until after 60 days' notice and a specific authorization by the Interstate Commerce Commission after a hearing. Other differences and the effect of the substitute were described by the conferees as follows:

> Title I of the bill as passed by the Senate contained a definition of the term "subsidiary", which, taken together with the use of the term in various provisions of the title, had the effect of subjecting those companies covered by the definition to control and regulation by the co-ordinator. These provisions as to

subsidiaries were omitted from the amendment passed by the House. The substitute restores the definition of the term "subsidiary", but confines the operation of certain of the provisions of sections 4, 5, 6 and 10 to subsidiaries subject to the Interstate Commerce Act as amended, and omits the term from that part of section 5 relating to voluntary action by the regional committees. The words "and the commission", omitted from section 6 by the House amendment, are restored in the substitute.

Section 4 of the bill as passed by the Senate contained a proviso that no existing routes should be eliminated except with the consent of all participating lines or upon order of the co-ordinator. This was omitted from the House amendment. The substitute restores this provision.

The House amendment omitted "cost finding in rail transportation" from matters which, under section 13 of the bill as passed by the Senate, are to be investigated by the co-ordinator. The words are restored in the substitute.

The bill as passed by the Senate provided for an assessment upon the carriers of $1 per mile for the payment of the expenses of administration of title I. This was increased in the House amendment to $2. The substitute fixes the amount at $1.50.

The House amendment rewrote section 203 of the bill as passed by the Senate, so as to include a provision authorizing the Interstate Commerce Commission to approve agreements for consolidation, acquisition, or control by or between cable and/or telegraph companies or the companies controlling them. This provision is omitted from the substitute.

Section 19 of the bill as passed by the Senate was omitted from the House amendment. This section was added at the end of title II, although it was intended to operate as a limitation with respect to the effect of orders of the co-ordinator relating to intrastate commerce upon the operation of state laws and state commission orders. It appears in the substitute at the end of subsection (b) of section 10, rephrased so as to fit with the provisions to which it relates.

The Senate bill contained the following sentence added at the end of paragraph (6) of section 5 of the Interstate Commerce Act, as amended by this act: "Nothing in this paragraph shall be construed or taken to ratify, validate, or recognize the validity of any act of any person accomplishing or effectuating or tending to accomplish or effectuate, prior to the enactment hereof, such control or management in any manner forbidden hereby after the enactment hereof." This sentence was intended to negative any possible implication in the bill that making certain future acquisitions unlawful had the effect of validating past acquisitions which might have been accomplished in violation of the law in existence at the time of the passage of this act. The sentence was omitted from the House amendment and from the bill as agreed to in conference on the ground that it was purely surplusage, as the same idea was already adequately covered in section 204, which appears in the Senate bill and the House amendment and the bill as agreed to in conference. The purpose of section 204 is to leave the legality of acquisitions made before the enactment of the act to be governed by the law in existence at the time of passage of the act, but it should be pointed out in this connection that nothing in section 204 will in any way interfere with the application of the provisions of paragraph (11) of section 5 of the Interstate Commerce Act, as amended by the bill, to holdings of stock by a carrier merely because such stock was acquired by the carrier before the enactment of this act.

It developed on June 12 that the conferees had made another change, in some way, by omitting from their revision of the bill the words "and relations" in Section 13, to include the subject of labor relations among those to be investigated and reported on by the co-ordinator. These words had been the occasion of an argument in the House, after the House committee had omitted them from the Senate bill, and their re-insertion by vote of the House was the only change made by the House in the bill as reported by its committee. Senator Dill on Monday introduced a concurrent resolution which was immediately passed in both houses requesting the President to return the enrolled bill, which he had not yet signed and directing the reenrollment of the bill with the two words deemed so important by the railway labor organizations restored.

The functions of the co-ordinator are not very specifically defined in the bill. It is made the duty of the three regional co-ordinating committees, on their own initiative to carry out the purposes set forth in the act relating to the avoidance of unnecessary duplications and the prevention of wastes, so far as such action can be voluntarily accomplished, by the carriers, but if they are unable for any reason, legal or otherwise, to do so, they are to make recommendations to the co-ordinator that he give "appropriate directions" and he is then authorized and directed to issue and enforce "such orders" if he finds them to be consistent with the public interest and in furtherance of the purposes of the emergency part of the bill. He is also to confer freely with the committees and give them the benefit of his advice and assistance, and if, in any instance, a committee fails to act in respect of any matter which the co-ordinator has brought to its attention and upon which he is of the opinion that it should have acted, he is authorized and directed to issue and enforce "such order," giving "appropriate directions" with respect to such matter "as he shall find to be consistent with the public interest."

On the other hand the co-ordinator and the regional committees are required to give reasonable notice to, and to confer with, committees representing labor before taking any action which will affect the interest of the employees, and to afford the labor committees reasonable opportunity to present their views. One of the purposes of the act is stated to be to promote financial reorganization of the carriers to reduce fixed charges and improve carrier credit, but this is left to the Interstate Commerce Commission, which is to withhold approval of a loan from the Reconstruction Finance Corporation to a company which it thinks is in need of reorganization, as it has done already in some instances.

Changes in Interstate Commerce Law

The permanent changes in the law, included in Title II, are amendments to Section 5, 15a, and 19a, of the interstate commerce act. Sections 201, 202, 203, and 204 amend section 5 so as to bring within the jurisdiction of the Interstate Commerce Commission for approval or disapproval any acquisition of control of a railroad which would result in bringing it into affiliation with, in control of, or under the management of, another railroad, whether the acquisition be by holding company or otherwise, and to provide that when a holding company is thus permitted to control a railroad, directly or indirectly, thereafter the accounts and capitalization of that holding company shall be subject to regulation by the commission. This brings all forms of acquisition or unification within the jurisdiction of the commission and requires the commission to find, before approving them, that they are in harmony with and in furtherance of its general consolidation plan and will promote the public interest. The 1920 law provided that an actual "consolidation" to be approved must be in harmony with the consolidation plan but included, in paragraph 2 of section 5, a provision by which the commission could approve other forms of acquisition without that requirement if it found them to be in the public interest.

New Rate Rule

Sections 205 and 206 strike out the whole of section 15a of the 1920 law and substitute for the "fair return" rule a new "flexible" rule of rate-making, recommended by the Interstate Commerce Commission and assented to by the railroads, the shippers, the state commissions and other organizations, that "In the exercise of its power to prescribe just and reasonable rates the Commission shall give due consideration, among other factors, to the effect of rates on the movement of traffic; to the need, in the public interest, of adequate and efficient railway transportation service at the lowest cost consistent with the furnishing of such service; and to the need of revenues sufficient to enable the carriers, under

honest, economical, and efficient management, to provide such service."

Section 206 provides that all moneys which were recoverable by and payable to the commission under the recapture clause shall cease to be so recoverable and payable and that all proceedings pending for the recovery of such money shall be terminated. The general railroad contingent fund established under the recapture clause, now containing $13,124,819, is to be liquidated and the Secretary of the Treasury is authorized to distribute the money in the fund among the carriers that have made payments, usually under protest, so that each shall receive its proportion of the total amount which includes some interest accretions, based on its payments.

Valuation Work Reduced

Sections 207 and 208 amend the valuation section, 19a, of the 1920 law to provide that "upon completion of the original valuations the commission shall thereafter keep itself informed of all new construction, extensions, improvements, retirements, or other changes in the condition, quantity, use, and classification of the property of all common carriers as to which original valuations have been made, and of the cost of all additions and betterments thereto and of all changes in the investment therein, and may keep itself informed of current changes in costs and values of railroad properties, in order that it may have available at all times the information deemed by it to be necessary to enable it to revise and correct its previous inventories, classifications, and values of the properties; and, when deemed necessary, may revise, correct, and supplement any of its inventories and valuations."

This is expected to reduce greatly the volume of the valuation work and in recognition of that fact as well as of the repeal of recapture the commission's appropriation for valuation for the coming fiscal year has been reduced to $1,000,000, as compared with $2,750,000 for the present fiscal year and as much as $3,500,000 in some earlier years. Former Commissioner Lewis, now director of the Bureau of Valuation, has stated that the reduction in appropriation would make it necessary to reduce the valuation force of 913 by discharging about 600. He said that the valuation records of some 1950 carriers are now up to date as of January 1, 1928, and many of them are up to 1930, 1931 and 1932. Before the reduction in appropriation it had been planned to bring all records up to January 1, 1933, by the end of the next fiscal year.

As the law automatically terminates the various court proceedings in recapture cases in which railroads have sought a review of the commission's methods of valuation, and as it removes valuation as a specific rate base, the commission's valuation work will doubtless continue for some time without any court decision as to the correctness of its methods, although hereafter the commission will assemble data which may be used in various ways to make up final valuations.

442 Possible Recapture Claims Dropped

Repeal of the recapture clause in Section 15a sets aside the results of the commission's recapture-valuation procedure which has been in progress for many years under which the commission's Bureau of Valuation had estimated the total recapture liability of 422 railroads for one or more years of the period from 1920 to the end of 1931 at $342,239,638. This included $318,210,405 for 88 Class I railroads, some of which are now in receivership, while the balance represented the amounts estimated for 334 smaller roads, some of which have since been abandoned. The amount which had been paid in, with interest accumulations, which is now to be returned to the roads that paid it, was $13,124,819.

The $342,000,000 estimate included $44,879,238 for railroads affiliated with the United States Steel Corporation and $116,430,278 for the coal-carrying roads of the Pocahontas region, the Chesapeake & Ohio, Norfolk & Western, Hocking Valley, and Virginian. Commissioner Eastman also presented an estimate that on the basis of the average results for the entire period, 1920 through 1933, the total recapture liability for the Class I roads might be around $148,000,000.

Through all the recent discussions of the bill, although much has been made in some quarters of the relief to be afforded to such railroads as may have in one or more years since 1920 earned more than 6 per cent on the commission's valuation, little attention has been paid to the fact that it also repeals the rate-making rule of Section 15a, which used to be called a guaranty of 5¾ per cent and which is still often referred to by many Congressmen as if such a guaranty were actual and still in effect, although the roads have never received that much for any year and have fallen short of it for the entire period by over $4,000,000,000, approximately the amount of the present total recapture estimate for each year of the period.

Railways Study Economies

Considerable progress has already been made recently by the railroads in the study of various methods for effecting co-ordination and economies as indicated by the following list furnished by R. V. Fletcher, general counsel, Association of Railway Executives, to the House Committee during its consideration of the bill:

Subjects receiving study and active consideration in the southeastern territory are:

1. Saving in dining car operations.
2. Elimination of competitive passenger train service.
3. Terminal service and the extent to which any wasteful practices may be eliminated, including the possible joint operation of terminal facilities, and the extent to which the apportionment of such terminal service in line haul rates may be eliminated.
4. Construction and/or maintenance of private sidetracks for shippers, with a view to developing to what extent the carriers in the southeastern territory are observing uniform practices with respect to their dealings with shippers.
5. Elimination, where possible, of uptown ticket offices.
6. Reciprocal purchasing by rail carriers in connection with traffic routing.

Subjects receiving study and active consideration in the eastern territory as of April 21, 1933:

1. Lighterage and port practices in New York Harbor.
2. Warehousing and storage of property by carriers at the port of New York.
3. Free use of railroad piers at North Atlantic ports.
4. Free loading and unloading of package freight at New York and Philadelphia.
5. Discontinuing payment for labor in loading or unloading intercoastal or coastwise freight.
6. Operation of Union Inland Freight Station of the Port of New York Authority.
7. Joint produce terminals.
8. Joint inspection of fruits and vegetables.
9. Joint bureau to examine claims for loss and damage to perishable freight.
10. Store door collection and delivery.
11. Economies in purchasing.
12. Movement of sand and gravel from railroad owned docks at Lake Erie ports.
13. Reduction in expense of memberships in chambers of commerce and local organizations.
14. Elimination and consolidation of ticket offices.
15. Off-line agencies.
16. Co-ordination of activities and consolidation of efforts of railroad bureaus located in Chicago.
17. Circuitous routing.
18. Competitive passenger train service.
19. Construction and maintenance of industry side tracks.
20. Passes for directors of Akron, Canton & Youngstown Railway.
21. Discontinuance of Trunk Line Mileage Committee.
22. Collection of freight bills by one agency at common points.
23. Transportation of empty equipment for return haul of company material.
24 Rules to govern handling and furnishing of refrigerator cars. (Rule 36 of Perishable Protective Tariff).

Subjects receiving study and active consideration in the western territory:

1. Competitive passenger train service.
2. Competitive freight train service; fast freight schedules.
3. Co-ordination of terminals in Chicago.
4. Co-ordination of terminal facilities in other western terminals.
5. Purchasing of new passenger equipment and appliances.
6. Pooling special types of freight equipment as against purchases.
7. Survey of joint organizations in western territory with a view to consolidation and co-ordination of their activities.
8. Restricted pass agreement.

Air-Conditioning Requirements

Standard dimensions for equipment recommended to reduce items in stock and improve railroad market

FOUR papers on air-conditioning were presented at the recent Northeastern District meeting of the American Institute of Electrical Engineers at Schenectady, N. Y. The papers were "Air-Conditioning in its Relation to Railroads" by W. J. Madden, Pennsylvania Railroad; "Electrical Equipment for Use With Air Conditioning," by L. Gwathmey and B. S. Weaver, General Electric Company; "Energy Requirements of Various Types of Air Conditioning Apparatus," by D. W. McLenegan, General Electric Company; "Aerodynamic Aspects of Air Conditioning," by S. M. Anderson, B. F. Sturtevant Company.

Railroad Service

Mr. Madden, in the first part of his paper, listed and classified the types of equipment which have been produced for railroad service. In the latter part he showed how the characteristics of existing equipment make certain demands on the railroad user and proposed specifications which the equipment should meet. This part of the paper is summarized as follows:

Most air conditioning equipment will be applied to existing equipment, and low cost of installation requires a minimum rearrangement of existing apparatus. Sacrifice of revenue space is undesirable and lightness of weight important. In geographic locations where the cooling period is short, the ice system shows best overall efficiency since its lower fixed charges permit a higher operating cost.

It is highly desirable that connecting railroad lines with through connections employ only one air-conditioning system. In electrified territory power can be obtained from the contact wire, but this offers few advantages if the cars also run in steam territory.

Precooling of Air-Conditioned Cars

One of the principal problems in air conditioning of passenger cars is precooling at terminals. In the case of the ice system, the energy requirement for the precooling operation is small enough so it can be supplied from the car battery.

With the steam jet system, the precooling is accomplished either with steam supplied from the yard lines or with steam supplied by the locomotives just prior to departure. The electrical load can be supplied by the car battery if the capacity of the battery and axle generator are sufficient for the imposed duty.

The compressor systems require the most energy, and this may be supplied by the car battery, when size of battery and service conditions make this possible, or the car equipment may include a stand-by motor for plug-in service from a 220- or 440-volt 3-phase distribution system at the terminals.

Coach yards are now provided with a direct current system for battery charging, but the capacity of the receptacles and the size of copper in the lines would not permit of precooling many cars simultaneously. It has been suggested that certain tracks be segregated for the handling of air-conditioned trains, but such an arrangement would seriously handicap yard operations. It is apparent that considerable terminal changes will be required in order to provide the required yard and terminal facilities.

Standardization

Ruggedness, simplicity, reliability and accessibility must be characteristics of the air-conditioning systems to be used on railway passenger cars.

Both the air-conditioning unit and the refrigerating unit should be of the self-contained type so that they can be easily applied or removed from the car without disturbing any of the car equipment. The cooling and heating systems should be co-ordinated, especially in territories where cooling and heating may be required at different places on the same trip.

It appears that standardization of apparatus would be conducive to lower costs of production; as an example, the air conditioning or refrigerating units made by the several manufacturers might be fabricated so as to be interchangeable even though the component parts were different. Such a procedure should benefit both railroad and manufacturer by reducing costs and increasing the market.

Electrical Equipment and Energy Requirements

The paper on electrical equipment for air conditioning by B. S. Weaver was concerned principally with equipment for residences, but emphasized the need for such equipment being quiet, safe and dependable; its performance must be such that the person benefited will not be conscious of the machinery which is providing his comfort.

The paper on energy requirements by D. W. McLenegan pointed out that the amount of energy required is affected by personal requirements, weather conditions and type of building or car construction. Tests reported in the paper show that the use of awnings, attic ventilators and improved insulation may cut in half the power needed for an 8-room house—from 10 to 5 h. p.

Aerodynamics

The paper on aerodynamic aspects of air conditioning by S. M. Anderson showed the importance of determining the air resistance characteristics of a duct system and of matching this with a type of fan having characteristics which match those of the duct system. Fans with backwardly curved blades are especially recommended for air conditioning since they are quiet and because it is impossible, when the proper fan is selected, to overload the driving motor by opening or closing vents or dampers in the duct system.

Special Window Glass

In the discussion which followed the presentation of the papers, W. W. Shaver, physicist, Corning Glass Works, said there are available special window glasses which resist the transmission of heat and which are more effective than awnings. Ordinary window glass, he said, has an 87 per cent heat transmission, whereas special glasses reduce this to 40 per cent; in cases where a little darker shade of glass is acceptable the heat transmission can be reduced to 25 per cent.

Traffic Clubs Meet

THAT a gradual transition from social into educational organizations is taking place among the traffic clubs throughout the country was evident at the semi-annual meeting of the Associated Traffic Clubs of America at Peoria, Ill., on June 6-7. This trend was emphasized by G. Lloyd Wilson, professor of commerce and transportation at the University of Pennsylvania and chairman of the Committee on Education and Research of the Associated Traffic Clubs, who spoke on the subject "Is the Traffic Profession Ready for Professional Organization?"

Professor Wilson stated that future progress will be determined by the organization of a professional group within the industry which will promote the best interests outside the ranks and develop high training methods. "An organization of this sort," he said, "is needed to conduct impartial scientific investigations into transportation problems and to publish its findings for the benefit of the transportation industry and the public. Substantial progress has been made in developing a literature of transportation and traffic management and universities, colleges, evening schools, extension schools, correspondence courses and study groups have assisted in training many for more effective service and advancement. Much has been done but not enough. It remains for the traffic clubs to complete the foundations and to start the building which should grow into an imposing edifice."

The program of the two-day meeting included addresses by Joseph R. Warner, president of the Nalray Corporation, New York, on "Reorganization of the Rail Capital Structure;" by Dr. C. S. Duncan, economist of the Association of Railway Executives, Washington, D. C., on "Contributions of the Highway Users for the Use of the Highway;" by J. Paul Kuhn, president of the National Association of Railroad and Utilities Commissioners, Batavia, Ill., on "Constructive Governmental Supervision of Motor Transport;" and by J. M. Fitzgerald, vice-chairman of the Committee on Public Relations of the Eastern Presidents' Conference, New York, on "Facing the Facts." The annual meeting of the Associated Traffic Clubs of America will be held at Baltimore, Md., in October.

Dr. Duncan contended that users of highways in Illinois contributed less than 20 per cent of the total funds made available for all rural highways and city streets from 1923 to 1930.

"These roadways," he said, "are obviously expensive highway trunk lines that most nearly parallel and duplicate the rail carriers and are the ones that have been especially constructed for commercial highway use much beyond the needs of private automobiles." "If, therefore," he continued, "it is the proper function of the government to develop and maintain a highway, then it should, in all fairness, be done on a strict business basis of self support, i. e., by those served paying in whole for the service. The essential difficulty in the extension of government functions is that under our theory the government does not conduct itself as a private business must. It has never been our theory that when the government extends its functions into private business, it should do so strictly on the basis of the elements of cost which a private business must meet. This has always been our primary difficulty in the source of subsidies."

Mr. Warner stated that the railroads are not overcapitalized but that so much has been written and said about railroad capitalization that many fair-minded persons have acquired convictions based on incorrect facts or assumptions. He asserted that there is no logic in the contention that the capitalization should be scaled down in line with present almost non-existent earnings, for it is not rash to anticipate a substantial improvement in railroad traffic in due course of time. "Even if traffic does not improve," he said, "present earning power is not reflected by current earnings, for if there were no warrant for anticipating a recovery in traffic, then the carriers could, through consolidations or otherwise, curtail much of the present service, reduce expenses and conserve to net income more of the present meagre revenues." An abstract of Mr. Warner's paper will appear in a later issue of the *Railway Age*.

Nation-Wide Interest Centered Around Transportation

At the banquet on the evening of June 6, Mr. Fitzgerald expressed the view that a nation-wide interest has centered around the transportation industry in general, and railway transport in particular, with the result that a national transportation service is demanded, while at the same time the lack of a national transport policy, which is essential to any sound plan for providing a completed transport service, is overlooked. "From an industrial standpoint," he said, "the need for efficient and economical transport service is great because the United States constitutes the largest area on this earth wherein there exists free and unrestricted trade and commerce. We possess great natural resources and a highly developed productive capacity, but the real value of these resources will always be determined by our ability to distribute goods and services. As a people, we subscribe to the principle that those who use a service should pay the cost of that service and that transportation should be governmentally regulated in the public interest. The rail carriers and the users of rail service are required to meet those conditions, while competitors of the railways enjoy government subsidy and operate relatively free from governmental supervision.

"It is generally conceded that we enjoy the most efficient railway service at the lowest real cost known to the world. But we are told that the rail carriers no longer constitute a monopoly in the field of inland transport; that they should again modernize their plant and adopt new methods in order to meet a growing competition which is frequently referred to as the advance of national progress. But we hear little with regard to the elimination of excess services and the wasteful practices of the governmentally subsidized and unregulated competitors of the railways.

"What portion of our transport service do we expect the rail carriers to provide in the future? Shall they continue to maintain a plant capable of handling the maximum needs of the nation—including all the traffic which other agencies cannot handle, or which they do not find profitable or convenient to handle? These questions are of paramount importance to the agricultural and industrial life of tomorrow."

Co-ordination of All Transportation Possible

Mr. Kuhn said that it is possible, with proper regulation, to set up a co-ordination of all transportation facilities so that the community which today does not have adequate rail transportation can have a combined or co-ordinated service of motor transport and rail transport and thereby give to that community an advantage over the service which it originally had and yet improve rather than destroy the revenues of the rail carrier. "I believe," he continued, "it has become a generally accepted fact that motor transport operations are, at the present time, an essential integral part of the general

transportation system of the land, but the public is entitled to the same safe and dependable motor service at reasonable and non-discriminatory rates as is required from the rail carriers.

"At times it has been suggested that the only kind of regulation required was the imposition of an adequate tax which would require the motor transport to pay its proportionate share toward the injury to the public highways. To determine just what this should be, under all motor vehicle conditions and the greatly varying highway conditions, is rather difficult. Also I share the view that traffic should not be held on the rails by such an artificial barrier, nor should the railroads be required to compete with unfair, ruinous or subsidized competition.

"The motor vehicle operator who uses a public highway, constructed and maintained out of public funds, and who does not pay a proper charge in proportion to his use of the highway, is to that extent subsidized; and no form of transportation, the rates and service of which are regulated, can long exist in competition with an unregulated and unwarranted service which, in addition to not paying its way, is subsidized.

"Unless the motor transport operator of today recognizes the fact that he rightfully occupies an important place in the general transportation system of the country and that beyond that point he must not go, and unless the railroad recognizes that up to certain limits it can render a reasonable and adequate service and thereby occupy a most important field and beyond that field it must not complain against the motor transport, the result will be that the railroad will be financially injured, its revenues will be reduced, the banks and other investment houses furnishing the capital, will be injured.

"The public will not approve of a discontinuance of the railroad systems which are so essential to the existence of the nation, and as that condition seriously threatens, the public will cause adoption of legislation to tax the motor carriers off the highways. If that is done, it will then take many years for the railroads to rebuild a proper financial standing and re-establish their credit so that they may, either with or without the aid of motor transport, render a complete transportation service. The neglect or failure then of both the motor transport and the railroad to understand the proper places to be occupied by them in the general transportation field will result in injury to both and injury to the public through a reduction or impairment of general service to it.

"It would then appear that there are but two means of avoiding this undesirable result; first, by complete understanding of their part in the transportation world; and second, by proper legislation to regulate and control both industries. Neither would be likely to be productive of full and satisfactory results, but experience has taught us that in a competitive field, competition cannot be left to the fair judgment and fair business dealing of the owners of the industries.

"Unlimited and unrestricted operators of motor vehicles and lack of jurisdiction to prescribe and require compliance with reasonable rules and regulations, have brought many evils to the bus and truck transport industry and have produced competitive bidding for business, resulting in the establishment of ruinous rates which in many instances do not meet the actual out-of-pocket cost of operation. This results in the destruction of many of such operating companies, and each transaction of that character contributes, in a measure, to the destruction, both financial and physical, of the existing railroad carriers and to insurance companies, savings banks and other banking institutions which have placed capital in the industry."

Rock Island to Reorganize

THE Chicago, Rock Island & Pacific, on June 7, applied for and was granted permission by the federal district court at Chicago to reorganize under the recent Act of Congress relating to bankruptcy. It is the fourth of the larger lines of the country to seek relief from financial stress through this legislation. Federal Judge James H. Wilkerson directed the officers of the railroad to operate the property subject to the court's approval, and ordered the company to start a new set of books as of June 8 and to submit a statement of assets and liabilities, as of June 7, on August 31.

The petition of the Rock Island stated that interest amounting to $2,259,710 will become due during June and July, that loans maturing on March 1 and April 1, 1934, total $144,303,700, that the railroad is without funds to pay and discharge these obligations as they mature and has no means of borrowing money. A statement issued by the board of directors said the Reconstruction Finance Corporation had declined to loan the road $2,000,000 more and that both the Interstate Commerce Commission and the Reconstruction Finance Corporation had indicated that no further advance was to be made on collateral now held for a current loan of $13,700,000. "With these facts in mind," the statement continued, "it is the feeling of the board of directors that the greatest care should be taken to make no payments that might in any way be prejudicial to the rights of any particular class of security holders. The board has, therefore, authorized an application to the federal court at Chicago for the protection of the court under the provisions of the new law."

This is the second time the Rock Island has undergone reorganization within recent years. Receivers were appointed on April 20, 1915, owing to the road's inability to finance about $6,000,000 of bills and loans. A reorganization plan was announced on November 14, 1916, and was carried out without foreclosure. The receiver was discharged on July 27, 1917.

The annual report as of December 31, 1932, showed assets of $547,751,096, of which $533,030,279 was invested in road and equipment, etc., and $13,409,508 was current assets. The total funded debt was $313,850,084, while current liabilities amounted to $27,490,596.

The total operating revenues for the year, $70,780,026, were the lowest since 1914 and were approximately $28,000,000 under those for 1931. The total operating revenues of the railroad declined from $147,721,562 in 1929 to $123,079,909 in 1930, to $99,069,563 in 1931 and to $70,780,026 in 1932. In the same period, operating expenses were reduced from $108,555,385 in 1929 to $90,551,758 in 1930, to $74,525,868 in 1931 and to $56,341,423 in 1932. In spite of this drastic curtailment of expenses, the net income of $14,007,321 in 1929 was reduced to $7,700,229 in 1930 and to a net income deficit of $386,545 in 1931 and of $9,956,801 in 1932. Dividends totaling $8,772,245 were paid in 1929 and 1930 and $3,456,648 in 1931, while none was paid in 1932. The railroad has $128,909,211 of capital stock, including $74,359,723 of common stock outstanding, and of the latter, the St. Louis-San Francisco, which is also undergoing reorganization, holds, $18,333,300.

The Rock Island operates 8,333 miles of lines, serving Illinois, Iowa, Missouri, South Dakota, Minnesota, Kansas, Nebraska, Colorado, Oklahoma, Tennessee, Arkansas, Louisiana, New Mexico and Texas. Since March 11, 1933, its carloadings, like those of all railroads, have shown marked improvement.

NEWS

New Haven Wins Harriman Gold Medal Safety Award

Atlantic City Railroad, the Texas-Mexican Railway and Pullman Company also honored

The New York, New Haven & Hartford, represented by President J. J. Pelley, was awarded the Harriman Memorial gold medal for the year 1932 at a luncheon of the American Museum of Safety, held at the Union League Club, New York City, June 14, 1933. The silver medal was awarded to the Atlantic City Railroad Company, the bronze medal to the Texas-Mexican Railway, and a certificate of special commendation was awarded the Pullman Company. Arthur Williams, president of the American Museum of Safety Trustees, and chairman of the Committee of Award, presided at the meeting.

The gold medal is awarded for the best safety record of Class I railroads operating more than 10,000,000 locomotive-miles during the year. The citation for this award showed that according to the Interstate Commerce Commission records the New Haven has reduced its employee casualty rate 94.16 per cent, comparing 1932 with 1923. In accepting the gold medal, which was presented to him by W. A. Harriman, chairman of the Union Pacific, President Pelley paid a high tribute to C. N. Woodward, assistant to the operating vice-president and general manager, who had been in charge of the safety work on the New Haven for the past three years. Mr. Woodward died on Monday of this week.

There were 66 contestants for the Group B award, the railroads in this group operating between 1,000,0000 and 10,000,000 locomotive-miles per year. The citation for the award of the silver medal to the Atlantic City Railroad Company contained this statement: "With more than 2,000,000 passengers carried approximately 104,000,000 passenger-miles, there were no passengers killed and only two passengers injured." Superintendent John S. Goodwin represented his road in receiving the medal, the presentation being made by E. Rowland Harriman.

There are 41 Class I railroads in Group C, each operating less than 1,000,000 locomotive-miles per year. The citation for the bronze medal, awarded to the Texas-Mexican Railway, indicated that for two consecutive years this road had had only three reportable injuries in all classes of accidents included within the Harriman plan of award. This is the third time that the bronze medal has been awarded to this road.

In the absence of President Crawford of the Pullman Company, the certificate of special commendation was received for that company by Vice-President Hale Holden, Jr., the presentation being made by E. Rowland Harriman. The award was made on the basis of the large part which the Pullman Company has had in co-operating with the railroads in the safety movement and for the splendid safety record which it has had in accidents to its employees.

Arthur Williams, president of the American Museum of Safety, was presented with a certificate as an honorary life member of the National Safety Council, the presentation being made by Lew R. Palmer. This award was made on the basis of Mr. Williams' active interest in the safety movement for many years.

Alton Desires to Discontinue A. T. C.

The Alton has applied to the Interstate Commerce Commission for relief from the requirements of the automatic train control order, as applied to its line between Glenn Yard (Chicago) and Normal, Ill., 114 miles.

Trans-Missouri-Kansas Shippers' Board

The eleventh annual meeting of the Trans-Missouri-Kansas Shippers' Board will be held at Kansas City, Mo., on June 21. E. H. McReynolds, assistant to the president of the Missouri Pacific, will be the speaker at a joint luncheon of the shippers' board and the Kansas City Traffic Club.

Postponement of Power Reverse-Gear Order Refused

The Interstate Commerce Commission has denied the petition of the American Railway Association and the American Short Line Railroad Association for a postponement of the effective date of its order in the power reverse gear case, pending litigation on the application of the railroads to the federal courts for an injunction.

Railway Employment Shows Small Increase in April

Railway employment increased slightly between March and April, according to the Interstate Commerce Commission's preliminary statement of the number of railway employees. The total for Class I railways excluding switching and terminal companies as of the middle of April was 925,480, a decrease of 13.46 per cent as compared with the number in April, 1932, but an increase of 5,599 as compared with the number in March of this year.

General Atterbury Views the Railroad Situation

P. R. R. President outlines plan for rehabilitation in address at Harvard Business School

The causes which he sees underlying the present railroad situation and the remedies he would apply thereto were outlined by General W. W. Atterbury, president of the Pennsylvania, in an address delivered on June 9 at the celebration of the twenty-fifth anniversary of the Harvard Graduate School of Business Administration, Cambridge, Mass. The principal causes of the present condition of the railroads, General Atterbury found, may be grouped under four heads as follows: (1) The depression; (2) government regulation of railroad wages and rates; (3) wastes due to the competition of unregulated and partly subsidized transportation agencies by highway and water; (4) excessive competition of the railroads with one another.

Before discussing each of the foregoing in turn, General Atterbury brought his audience "up to date on the published recommendations of responsible organizations or persons in authority." In this connection he quoted from pronouncements of President Roosevelt; the Republican platform of 1932; the National Transportation (Coolidge) Committee; the Chamber of Commerce of the United States; the Interstate Commerce Commission; the National Association of Railroad and Utility Commissioners; the National Association of Manufacturers; and the Joint Committee of Railroads and Highway Users.

Getting back to the "four factors of adversity," the speaker passed over the first —the depression—with the observation that "The railroads will benefit with all other industry and agriculture when economic conditions reach that sustained plane of improvement toward which our energies must be co-operatively directed."

In connection with the second cause—the inconsistency of government policies in dealing with railroad wages and rates—General Atterbury expressed the belief that this inconsistency "has never been accorded the importance which it deserves and, in consequence, the public is unaware of the extent of its bearing upon the present difficulties of the railroads." He then compared wartime wage increases with rate adjustments of that period and held that "the plain lesson of these figures is that the wage-fixing policies of the government, established during the war and continued after it, have resulted in imposing upon the railroads wage scales which are far out

(Continued on page 877)

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New Motor Truck Laws Enacted in Minnesota

Increased payments for use of highways and more comprehensive regulation provided

Increased payments by motor freight operators for their use of the highways, reduced size and weight limitations on motor trucks and more stringent regulation for highway carriers are provided in legislation recently enacted in Minnesota. Also, under another new statute—the Trunk Highway Extension Law—property taxpayers will receive substantial relief by the shift of the cost of constructing and maintaining approximately 4,500 miles of secondary highway from local tax-levying units to the state highway fund; included in this shift are approximately 150 miles of trunk highway through cities.

During the past 12 years, 86 per cent of all motor vehicle fees (including gasoline taxes) collected in Minnesota have been expended on the 6,739 miles which heretofore comprised the trunk highway system and which is only 5.8 per cent of the 116,000 miles of highway in the state. The one-third of the gasoline tax apportioned back to the counties of the state has paid only nine per cent of the cost of county highways. Property owners have paid 91 per cent of the cost of 26,161 miles of county highways and all of the cost of 83,100 miles of township roads.

The truck license law, after exempting from its provisions farm trucks and vehicles operated within a 35-mile radius of incorporated communities, increases the fees upon long-haul vehicles in amounts ranging from 10 to 400 per cent. Trucks are classified in three groups as follows: Class T trucks, owned by farmers and used by their owners in connection with their farm operations; Class X trucks, operating wholly within 35-mile zones around their registered towns; Class Y trucks, which includes all others.

The first two groups will continue to be assessed as heretofore, i.e., on a valuation basis except that fees for farmer-owner trucks, will be substantially reduced during the next two years. Class Y trucks will henceforth be subject to fees fixed on a graduated weight basis. These new fees are as follows: Gross weight three tons or less, $25 plus $15 for each ton over three; gross weight over 10 tons, $130 plus $40 for each additional ton; gross weight over 15 tons, $330 plus $75 for each additional ton.

Also, this law restricts reciprocal agreements with other states and provides for an optional mileage tax on interstate trucks ranging, according to unladen weight, from ¼ cent to 4 cents per mile with a $5 registration fee and $200 bond to insure payment. Interstate operators may either pay these mileage fees or obtain Class Y licenses on the same basis as intrastate operators.

The specifications law, the so-called Safety Act which will become effective January 1, 1934, prohibits the operation of trailers weighing more than one ton unloaded or three tons with load; it reduces the motor vehicle length limit from 75 to 40 ft. and specifies wheel and axle weights which, together with other limitations, have the effect of restricting loads on a 4-wheel truck to about eight tons and on a tractor-semi-trailer combination to about 10 or 12 tons. Also, this law rescinds the authority of the State Highway Commission to designate certain highways on which vehicles could carry heavier loads than were normally permitted by law.

The regulatory law, which becomes effective July 1, gives the Minnesota Railroad and Warehouse Commission broad powers over all trucks engaged in the transportation business, both intrastate and interstate, that are not now regulated as common carriers and which, in the case of intrastate trucks, do not operate wholly within 35 miles of the community where the owner resides. The commission is required to fix minimum rates for intrastate carriers, which rates shall be "reasonably compensatory"; rate-cutting, rebates and discrimination are prohibited and the shipper as well as the carrier is made liable for violations. The commission may prescribe accounting forms and also has broad powers over equipment and its fittings; it may fix limits on continuous hours of service for drivers but in any event such continous service is limited to 12 hours. This law, furthermore, bars peddling by motor carriers, or buying and selling commodities which they transport; it also prohibits the issuance of a highway permit to any railway and forbids railways from being directly or indirectly interested in a permit carrier. This provision does not, however, prevent railways from operating pick-up and delivery service within communities nor from extending such operations to the 35-mile limits prescribed for such local trucks.

Interstate carriers are subject to the same regulations as intrastate operators except as to rates and the provision prohibiting the buying and selling of commodities transported.

President Appoints Emergency Board For Labor Dispute

The President on June 12 issued a proclamation creating an Emergency Board to investigate and report within thirty days regarding disputes between the Kansas City Southern, the Texarkana & Fort Smith, and the Arkansas Western and certain of their employees, represented by the Order of Railway Conductors, the Brotherhood of Locomotive Engineers, the Brotherhood of Locomotive Firemen and Enginemen and the Brotherhood of Locomotive Trainmen. The proclamation sets forth that these disputes "now threaten substantially to interrupt interstate commerce within the states of Arkansas, Kansas, Louisiana, Missouri, Oklahoma and Texas, to a degree such as to deprive that section of the country of essential transportation service."

Members of the board, under the proclamation, are to be compensated in the sum of $50 for every day actually employed. Under the economy bill the compensation will be subject to a reduction of 15 per cent. Compensation previously allowed members of such boards has been at the rate of $100 a day and has not been subject to the 15 per cent cut.

Four Measures Required to Restore Rail Earnings

Samuel O. Dunn lists requisites in an address before the Texas Press Association

Four measures are needed to restore normal railway earnings, employment and purchases in addition to the principal requisite, an increase in traffic, according to Samuel O. Dunn, chairman of the *Simmons-Boardman Publishing Company* and editor of the *Railway Age*, in discussing emergency railroad legislation before the Texas Press Association at Houston, Tex., on June 9. These measures, according to Mr. Dunn, are:

"First, a general reduction of railway wages. The average hourly wage in the manufacturing industry is now 20 per cent less than in the five years ending with 1929. The average hourly wage of railway employees in the five years ending with 1929 was 65.5 cents; in 1930, 67.8 cents; in 1931, 68.9 cents; in 1932 (as a result of the 10 per cent deduction from basic wages agreed upon in February, 1932) 63.6 cents; and in the first two months of 1933, 64.6 cents.

"Second, withdrawal of all subsidies from competing agencies of transportation by air, highway and waterway. The railways have suffered losses of traffic to the trucks which, even under present conditions, are costing them freight revenues of approximately $600,000,000 annually.

"Third, comparable regulation of all carriers. That the railways should be subjected to strict regulation of their rate making, of the hours of service and wages of their employees and of every feature of their operations, while their competitors are subjected to no comparable regulation, especially by the federal government, is so obviously and grossly unfair to the railroads, and unsound as a matter of public policy, that the mere statement of the facts should be sufficient to arouse an effective public demand for more equal government treatment of all classes of carriers.

"Fourth, government loans to railroads. The railroads borrowed about $1,000,000,000 from the government during and immediately following the war and have repaid virtually all of the money with interest exceeding the amount of interest the government paid for it. One of the best means the government could adopt to help revive business would be to loan several hundreds of millions of dollars to the railroads on easy terms to be used by them in beginning immediately to do needed improvement and maintenance work that has been deferred during the depression, and in employing the labor and buying the materials required for such work. As business revives and traffic increases, the railways will have to increase their expenditures for improvements and maintenance any-way and government loans, which would enable them to do this work earlier than would otherwise be possible, would contribute more to speeding up the revival of general business than the use of an equal amount of government money in any other way."

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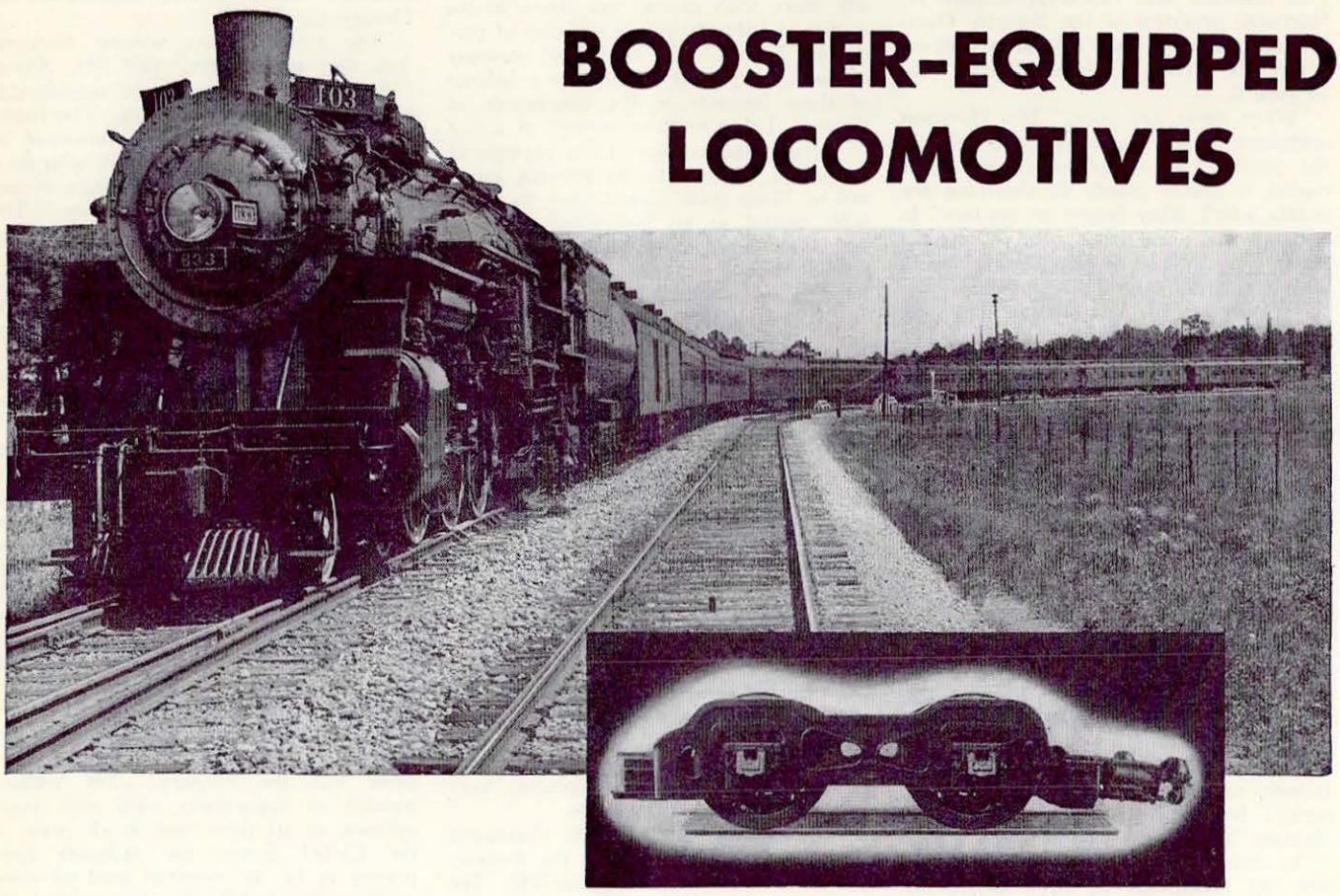
19 SOUTHERN PACIFIC LINES FAST PASSENGER TRAINS RELY UPON BOOSTER-EQUIPPED LOCOMOTIVES



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Harrison Urges Treating Labor as an Investment

Says employees seek boom profits like stock, depression wage assurance, like bonds

"Have we not reached the time for a new alinement of capital and labor that will give both a definite participation in income and a mutuality of objective?" This question was raised by Milton W. Harrison, president of the Security Owners' Association, New York, in an address before the Traffic Club of Atlanta, Ga., on June 8.

"When times are good," Mr. Harrison continued, "labor wants to share fully in the profits. It complains bitterly that capital is overly greedy in absorbing the profits which labor helped to produce. It contends that since the employees have invested their lives in the service they should receive a larger return than investors who invest only capital, not realizing that such capital often represents many years of thrifty accumulation derived from labor. Bondholders expect a fixed income regardless of business conditions, says labor, while workers are cast out of employment and deprived of their income during times of depression.

"It is true bondholders expect to receive their interest payments at all times. Long term bonds issued by railroads usually bear low rates of interest, and the holders of these bonds forego the possibilities of obtaining a high return on their capital during prosperous times in order to be assured of a stable return under all conditions. Yet labor apparently desires to be considered as an investment only in good times. In times of prosperity it seeks to share to the fullest extent in the profits. It seeks to secure the full fruits of prosperity; but when business meets with reverses, it does not want to share losses.

"In other words, labor appears to believe its investment of lives merits the rights which accrue to both stockholder and bondholder. It wishes an assured fixed standard of living in the form of wages and a share in profits without the acceptance of any of the uncertainties and this, in my opinion, is where much of the discord starts between employers and employees.

"In the present economy the difficulty arises from the fact that labor appropriates, through high wages, its share of the profits of the railroad industry before the product of transportation is sold and before it is established that there will be profits. The insistence that a high standard of living wage be included in the cost of operations results in a paradox, making it impossible to stabilize the investment of capital. If this system is allowed to endure, it is apt to make inevitable complete public ownership, with a shifting of individual responsibility to the shoulders of a political bureaucracy.

"An alinement of capital and labor that will give both a definite participation in income and a mutuality of objective would enable labor to share in the proceeds of profitable operations, and at the same time impose upon them a responsibility to share with capital the losses from unprofitable operation through temporary acceptance of a less satisfactory wage return. Without this new alinement what must transpire? Is labor to be an unlimited first fixed charge on all earnings, regardless of the rights of capital? If so, the result will be inevitably a stagnation of the flow of capital for essential purposes under private ownership. Labor should not share through high wages in the profits of industry before industrial products are sold, any more than capital can share in the profits of industry before the cost of production is met. The readjusted economy of the country must provide for a balance of these interests in the distribution of income. Labor must be assured of a cost of living wage as part of the expense of operations. Above this its growing standard of living must depend upon its status with capital as an investment. Capital and labor are both investors, and both should have their respective interests in income, and should participate in a division of income after a minimum return is paid to both the capital and labor investors."

Court Disallows Barge-and-Rail Cotton Rate Decision

At Wilmington, Del., on June 14, in the suit of 32 railroads, the United States District Court set aside the order of the Interstate Commerce Commission fixing rates on cotton by barge and rail from Mississippi River points to northern and eastern states. The court found that the commission had made its decision without having held full and fair hearings, no formal inquiries having been made. Judge O. B. Dickinson filed a dissenting opinion holding that the railroads had been deprived of no constitutional rights. The other two judges, concurring in the opinion, were Justices Nields and Thompson.

The order of the Interstate Commerce Commission was reported in the *Railway Age* of December 31, 1932, page 992. The suit was filed at Wilmington on February 2 of this year.

New Member of Board of Mediation Appointed

President Roosevelt on June 9 sent to the Senate the nomination of Vincent Y. Dallman, editor of the Springfield Ill., State Register, for appointment as a member of the United States Board of Mediation for a term of five years from January 1, 1933, succeeding G. W. W. Hanger, who has been a member of the board since its creation but whose term expired at the end of the year. Mr. Hanger had also been a member of the previous similar board, the Board of Mediation and Conciliation and served with the Railroad Administration in connection with labor matters. He was re-appointed by President Hoover but the appointment was not confirmed by the Senate. Mr. Dallman has been active in Democratic politics in Illinois and was one of the original supporters of Mr. Roosevelt in his campaign for the Presidency.

The appointment was confirmed by the Senate on June 10.

Confidence in Railroads Unshaken by Depression

Paul Shoup sure that the carriers are coming back because "in fact they never went"

Firm confidence in the future of the railways of the country was expressed by Paul Shoup, vice-chairman of the Southern Pacific, in an address before the National Metal Trades Association at Chicago on June 8.

"The railroads are coming back—in fact, they never went," said Mr. Shoup. "There seems to have been considerable misapprehension on that point. The future of the railroads is not to be measured by the depression, severe as it has been upon them, any more than is the future of any other great American enterprise. The shrinkage of the business of the country in the spring of 1933, as compared with that of four years ago, demonstrates that the traffic of the railroads has run parallel with our business generally, and we may, therefore, reasonably assume, as shown in April and May, that the traffic of the railroads will run parallel with the business of the country in its expansion as well.

"And nothing has developed contrary to this assumption in this period of depression, even though the railroads have suffered from the most acute competition and at great disadvantage, for with good highways available everywhere, little capital required and no regulation to speak of, men have endeavored in the operation of motor trucks to gain a bread and butter living; and steamship lines, in their great freedom from regulation, with a shrinking volume of total traffic to go after, have accepted a situation under which little more than operating expenses came into the treasury. Yet without equality of opportunity with their competitors, at all times and in all parts of the United States, the railroads have proved to be the essential need of commerce. If during the low period of March their traffic fell to less than one-half of that of the maximum activity of just four years before, that decrease was in keeping with the decrease in business activity of the country, and while some greater inroads relatively were made upon their revenues than had been made four years ago by unregulated competition on the highways, there is nothing in the figures to indicate that the railroads have lost ground substantially as an essential service to the American shipping public. As compared with the domestic waterways as a whole, the difference in the percentage division of traffic on the basis of ton-miles carried as between 1928 and 1932 does not favor the waterways more than their freedom of action in making rates would lead us to expect. The highways have taken a greater percentage of the business, partly because the contract carrier by highway can cut any public controlled rate without notice, partly because the cost of operation is at a minimum, there being no labor wage scale agreement, partly because their activity is more directly competitive with railroads, somewhat because of the ease with which ad-

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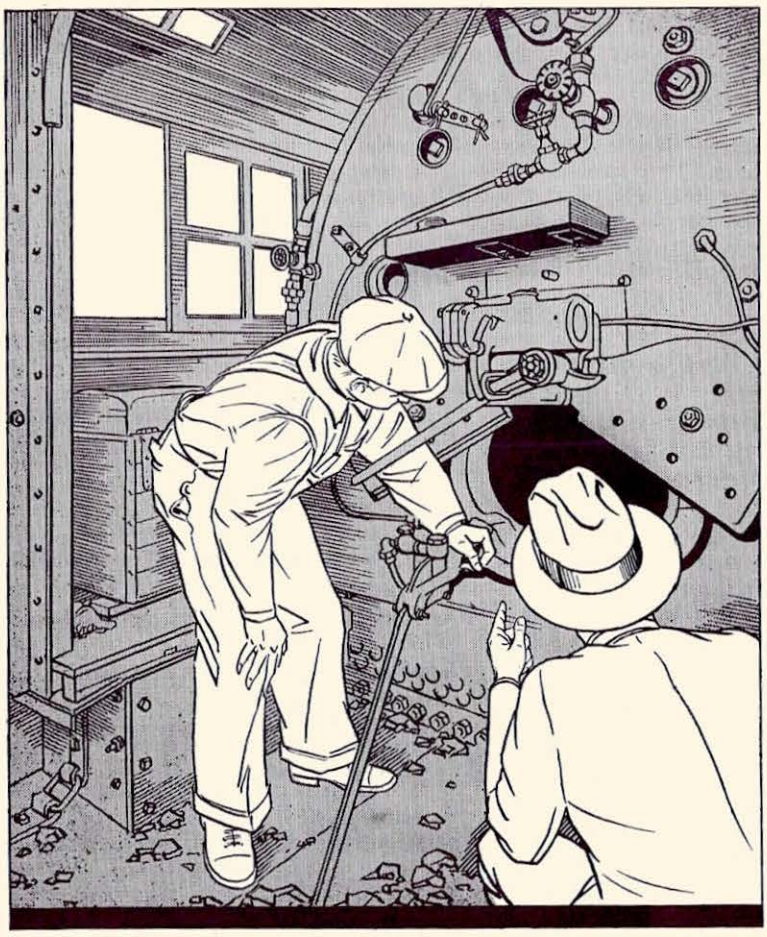

When 8 Arch Brick Saved A Ton Of Coal Per Trip

FUEL consumption on a certain group of locomotives was unsatisfactory.

Conditions of firing had been altered, but the locomotive Arch had been left the same.

Combustion experts of the American Arch Company quickly uncovered the trouble. A change in the Arch design and the addition of eight Arch Brick accomplished a saving of a ton of fuel per trip.

Whenever a change is made in firebox conditions, have a check up by American Arch Company engineers to see that you are getting everything you are entitled to from the Arch.

Bettering locomotive Arch performance has been the business of this organization for the past 23 years. Only American Arch Company has this experience behind it.

There's More To SECURITY ARCHES *Than Just Brick*

HARBISON-WALKER REFRACTORIES CO.
Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED
Locomotive Combustion Specialists » » »

ditional units can be put in service, and finally because their facility has been greatly increased by highway growth.

"Why, then, reading the red ink figures of the railroads for 1932 and the first four months of this year, should the railroad picture be of such sanguine color? The answer first, of course, lies in greatest degree in the lack of traffic, reflecting the business conditions of the United States. Therein is the major reason, and by converse, therein lies our chief hope, for the railways of the United States will come back in earning power as rapidly as the business of the United States increases and if, as I have said, they run parallel as in the depression, their future is assured.

"Now let me talk a little more about the red ink of the railroads, for after all they have, from a cash point of view, suffered a great deal more than has other industry generally; they have not had at their command the liquid assets to carry them through this period of depression as should have been the case. Many of the strongest have been obliged to borrow large sums from the banks so long as their credit was available and that done, they have been obliged also to borrow large sums from the government, though it is easy to exaggerate these loans as compared with their values in either instance. The money so far borrowed from the government, at a rate of interest quite profitable to the government, does not exceed 1½ per cent of the government's appraised value of the total of these railroad properties. The net earnings, after fixed charges on the average during the 10 years ended in 1930, would repay the total of government money actually loaned in nine months' time. Further, the government has exercised on the whole good judgment with respect to the securities it has required in making these loans. It is my belief that when all accounts are finally balanced, the Reconstruction Finance Corporation will not lose any money in connection with its railroad loans, and if it had not been for the Reconstruction Finance Corporation, we would have been in a state of chaos or most destructive reorganization months ago.

"But why have the railroads had to go to the banks or the government when that great list of industrial enterprises, earning little or nothing, having in mind their tremendous invested capital, have not had to borrow, but have been able to take care of their own financial affairs and maintain large deposits in the banks? The answer lies partly in the fact that the railroads are public servants directly controlled and these other industries are not. The railways have on one hand an obligation under the law to give an adequate service to the shipping and traveling public, as expressed in national and state laws, but the public has no obligation to give to them the traffic it may control. They have a primary obligation of service which does not in itself take into consideration an adequate return upon the investment. They are also obliged not only to render service but to provide facilities indirectly or directly assumed to be necessary to that service. There must not be car shortages, there must not be congestion in yards that interferes with the movement of traffic, there must be track facilities to keep trains moving freely and they must invest in public conveniences that have no earning power, such as are involved in the separation of grades; from 1927 to 1931, inclusive, they spent $230,000,000 independent of the charges to operating expenses in such facilities. They have been obliged to build, under the will of the people, great passenger stations that are handsome metropolitan features, but which cannot be justified on economic grounds.

"But, more important than that, they have not been permitted, under the law, to lay aside during the seven fat years those liquid assets arising from higher prices to take care of the seven lean years."

Plan For I. C. C. Reorganization Dropped or Postponed

The plan for a reorganization of the Interstate Commerce Commission and a transfer of several of its bureaus to a new transportation bureau in the Department of Commerce, recommended to the President some time ago, was not included in the executive order sent to Congress by the President on June 10 proposing a reorganization or abolition of a number of government agencies and accompanied by a statement that other changes were contemplated to be submitted at the next session of Congress.

The order proposed transfer of the Shipping Board to the Department of Commerce, which was part of the more general plan recommended to the President, but the part of the plan relating to the I.C.C. has been either dropped or postponed. Whether it has been dropped has not been officially indicated, although it had attracted a great deal of opposition.

Smoke Prevention Association Will Hold Annual Meeting

The twenty-seventh annual convention of the Smoke Prevention Association will be held at the Hotel LaSalle, Chicago, June 20 to 27, inclusive. The program of the railroad session, beginning Thursday morning, June 22, is as follows:

Thursday, 10:00 A. M.

Address by L. C. Fritch, vice-president, Chicago, Rock Island & Pacific, Chicago

Address by D. C. Buell, director, Railway Educational Bureau, Omaha, Neb.

Paper by J. W. Hulson, Hulson Grate Company, Keokuk, Iowa, on "Influence of Grate Design on Smoke Prevention"

Discussion of recent locomotive developments to abate smoke and cinders, by representatives of Locomotive Fire Box Company, American Arch Company, Superheater Company and others

Thursday, 2:00 P. M.

Private exhibition at the Museum of Science and Industry, Jackson Park

Inspection of terminals in Chicago and railroad exhibits at Fair Grounds

Friday, 10:00 A. M.

Address by O. E. Ward, superintendent of motive power, Chicago, Burlington & Quincy, Chicago, on "Smoke Abatement on Locomotives"

Address by T. W. Demarest, general superintendent of motive power, Pennsylvania, Chicago, on "Smoke Abatement at Railway Terminals"

Paper by E. G. Saunders, fuel conservation engineer, Atchison, Topeka & Santa Fe, Topeka, Kans., on "Fuel Economy and Smoke Abatement"

Century of Progress Excursion Fares

New adjustments in excursion rates for trips from Eastern cities to the Century of Progress Exposition at Chicago are to become effective on June 20, according to an announcement issued June 13 by C. L. Hunter, chairman of the passenger department, Trunk Line Association. Two new types of excursion tickets are involved as follows: (1) Round-trip tickets good in coaches only at approximately 83⅓ per cent of the one-way fare—these tickets will be on sale every day and will have a return limit of nine days in addition to the date of sale; (2) round-trip tickets at approximately 25 cents more than the one-way fare, good in sleeping cars upon payment of the round-trip Pullman rate (1½ times the one-way rate) and limited for return to 10 days in addition to the date of sale. This latter form of ticket, heretofore sold only on Saturdays, will after June 20 be available on both Tuesdays and Saturdays.

The announcement states further that passenger traffic officers expressed themselves as "greatly pleased with the increasing heavy patronage of the train service" to the Exposition.

Railways Serve Notice of Additional 12½ Per Cent Wage Cut

The railways issued formal notices to their employees on June 15 to the effect that, effective October 31, wages will be reduced 12½ per cent in addition to the 10 per cent deduction now in effect and bringing the total reduction to 22½ per cent.

The original agreement made with the employees in January, 1932, provided for a deduction of 10 per cent beginning February 1, 1932, and extending for one year, which original agreement was later extended until October 31, 1933, with the provision that the railways would have the privilege of initiating action for a further reduction on June 15. This option they have now exercised. Action on behalf of the railways is being initiated by a committee of which W. F. Thiehoff, general manager, Eastern Lines, Chicago, Burlington & Quincy, is chairman.

St. Lawrence Treaty Deferred For Another Session

A poll of the Senate having indicated that the St. Lawrence waterway treaty would be defeated if called up, it was decided shortly before the Senate adjourned not to attempt to take any action on its ratification. This was announced by Senator Robinson, Democratic leader in the Senate, on June 8, after a conference at the White House. The President had indicated that he was in favor of ratification if a poll should show that it could be accomplished without too much expenditure of time; and later he addressed a letter to Senator La Follette stating that he favored both the resolution passed by the House relating to the St. Lawrence power development and the ratification of the treaty itself. He said the treaty had been endorsed by both major political parties and that "the beginning of the work of construction at an early date can be made an essential part of the national public works program." Senator La Follette offered the House resolution as an amendment to the national industrial recovery act in the Senate on June 9 but it was defeated by a vote of 59 to 20. This was taken as some indication of the sentiment in the Senate because the House

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THE ROYAL SCOT

Locomotive 6100 is the first of 70 of the "Royal Scot" class. It was built in 1927, to the designs of Sir Henry Fowler, chief mechanical engineer of the railroad. In September last, No. 6100 drew a train over the 94 miles from London to Coventry in 82 minutes — an average speed of 68 miles per hour. Before shipment to America, it had run a total of 335,658 miles.

For the first time in history the American public is afforded an opportunity to inspect a modern British railway train . . . . the Royal Scot express of the London, Midland and Scottish Railway on exhibit at "The Century of Progress". It comprises the 4-6-0 type "Royal Scot" locomotive No. 6100 and a train of eight cars.

The Royal Scot express has provided a fast passenger service between London and Scotland for 70 years without interruption . . . . traveling daily in each direction between Euston Station, London and Edinburgh (400 miles) and Glasgow (401½ miles).

American railroad men will find equipment on the locomotive, which is familiar to them as Elesco equipment. The superheater, known as the "M.L.S." type (supplied by The Superheater Company Limited, London) is similar in design to the Elesco type "A" superheater and has Elesco-type integrally forged return bends. For economical boiler feed, all of these locomotives are equipped with the Davies and Metcalfe exhaust steam injector, the same principles of design of which are embodied in the Elesco exhaust steam injector, which also has a simplified control especially developed to meet the requirements of American railroading practice.

The "Royal Scot" exemplifies the broad character and extent of the activities of this company. Railroads the world over have standardized on Elesco-type superheaters. Through affiliated companies in Canada, Great Britain, France, Germany and Australia, we offer you the advantage of the cumulative experience with steam superheating for more than 40 years. Likewise, other Elesco equipment is designed and constructed on principles based on experience in modern railroading, both here and abroad.

ELESCO

A-788

NEW YORK **THE SUPERHEATER COMPANY** CHICAGO

resolution was regarded as an important step toward paving the way for the treaty. It was reported that the poll had shown 42 Senators opposed to the treaty itself.

Tie Stocks Reach New Low Level

A new low record for the number of cross ties in the hands of tie producers is reflected by the inventories on May 1, 1933, as reported to the Railway Tie Association by companies handling approximately 85 per cent of the commercial output. The number of cross ties in the yards of these companies on that date was 5,529,415. This was approximately 2 per cent fewer ties than were in stock on April 1, when the number was 5,655,550. It compares with 5,700,032 ties on hand March 1; 5,736,526 on February 1; 5,745,599 on January 1; and 7,164,939 on May 1, 1932, (or a reduction of approximately 22 per cent); and it represents a continued decline in tie stocks throughout the 17 consecutive months for which figures are available.

Stocks on May 1 consisted of 482,837 ties for use untreated, or 8.7 per cent of the total; 4,021,892 oak ties for treatment, or 72.7 per cent of the total; and 1,024,686 ties of other species for treatment, or 18.6 per cent of the total; while 3,610,623 ties, or 65 per cent of the stock on May 1, consisted of 8-ft. ties, and 1,918,792, or 35 per cent, 8-ft. 6-in. ties.

Of ties in the hands of the reporting companies on May 1, a total of 2,292,032, or 41.5 per cent, were stored in the district comprising the states of Kentucky, Tennessee, Alabama, Mississippi and that portion of Louisiana east of the Mississippi river. This stock was 2 per cent less than on April 1 and 23 per cent less than on May 1, 1932. Of the remaining ties, 1,666,137, or 30 per cent of the total, were in the district comprising the states of New York, Pennsylvania, New Jersey, Delaware, Maryland, Ohio, Indiana and Illinois, this stock being 2 per less than on April 1, 1933, and 27 per cent less than on May 1, 1932. The third largest storage, consisting of 1,329,143 ties, was in the district comprising the states of Nebraska, Iowa, Kansas, Missouri, Oklahoma, Arkansas, Texas and that portion of Louisiana west of the Mississippi river, this stock being 1 per cent less than on April 1, 1933, and 5 per cent less than on May 1, 1932.

Carroll Miller Becomes Member of I. C. C.

The President's appointment of Carroll Miller, of Pittsburgh, as a member of the Interstate Commerce Commission, sent to the Senate on June 3, was confirmed without opposition or debate on June 9, following a short hearing before the Senate committee on interstate commerce on June 8. Mr. Miller succeeds E. I. Lewis, whose term expired on December 31, and who was not reappointed but is now director of the commission's Bureau of Valuation. He had been recommended for the office by Joseph F. Guffey, former member of the Democratic National Committee for Pennsylvania, his brother-in-law, and by Mrs. Miller, now member of the Democratic National Committee. No opposition to the appointment was voiced during the hearing before the committee after Senator Neely, of West Virginia, had satisfied himself by questioning that Mr. Miller had had no interest in the lake cargo coal rate case. Mr. Miller said he knew about it only what little he had read in the newspapers and had formed no opinion. He is a consulting engineer of wide experience with gas, electricity, and water and has been connected with several utility companies, but testified that he had never been connected with a railroad. He was graduated from Stevens Institute of Technology in 1896 and was

Carroll Miller

later successively with the Illinois Steel Company, Chicago; erecting engineer with Humphreys & Glasgow, London, England; and in the operating department of the United Gas Improvement Company. From 1901 to 1907, as consulting engineer with George O. Knapp, at Chicago, he established the gas company at Osaka, Japan, and was engaged in a variety of consulting work including appraisals and rate-making. From 1907 to 1909 he was consulting engineer at Pittsburgh. From 1909 to 1914 he was chief engineer of the Providence Gas Company; from 1914 to 1918 general manager of the Western United Gas & Electric Company, Aurora, Ill.; from 1918 to 1919, general manager, Philadelphia Company, Pittsburgh; 1919 to 1921, vice-president, Guffey Gillespie Oil Company. Since 1921 he has been vice-president and recently president of the Thermatomic Corporation and the Thermatomic Carbon Company, at Pittsburgh, and has also been engaged in consulting work.

R. F. C. to Lower Interest Rates and Perhaps Salaries

Directors of the Reconstruction Finance Corporation have announced another reduction of one-half of one per cent in interest rates on loans, which will give the railroads a rate of 5 per cent; but with a string attached to it which gives the corporation power to bring about reductions in salaries of officers in some instances, even of railroads which have already received their loans; or of other expenses. Under a new law the corporation had already been given the power to require salary reductions as a condition of new loans and in the case of the Southern Pacific the same thing was accomplished by agreement before the new law was passed. In announcing the interest rate reduction Jesse H. Jones, chairman of the R. F. C., said that a condition precedent to the interest reduction was that "all borrowing corporations, including railroads, shall, if they have not already done so, adjust their salaries, fees, and operating expenses in keeping with the conditions that have made it necessary for them to borrow from the corporation, and in a manner acceptable to the corporation." Most railroads have reduced salaries considerably but the question still remains as to whether the reductions are sufficient to be "acceptable to the corporation."

The directors of the R. F. C. are also considering a further reduction of one-half of one per cent to railroads which pay their loans within a period of two or three years. This extra reduction, if made, would be at the time of payment of the indebtedness to the R. F. C. A reduction of one per cent would amount to over $3,500,000 to the railroads, which at the date of the latest report had borrowed $357,884,757 from the R. F. C. Originally the rate on railroad loans was fixed at 6 per cent but at the beginning of this year it was reduced to 5½ per cent. On the so-called "work loans," the rate has been 5 per cent. Borrowers other than railroads and closed banks will be given a rate of 4½ per cent and closed banks will get a rate of 4 per cent.

Interest reductions will be adjusted to all borrowers regardless of the rate that the notes bear, and the directors "have no doubt," Mr. Jones stated, "but that all borrowers will readily meet the conditions imposed, as was recently the case when the Southern Pacific reduced salaries, attorneys' fees, etc., on receiving a large loan."

The public works bill, passed by Congress just before adjournment, also carries a new authorization for loans to railroads, giving the President power to "aid in the financing of such railroad maintenance and equipment as may be approved by the Interstate Commerce Commission as desirable for the improvement of transportation facilities."

Norfolk & Western Finds Cab Signal System Too Costly

The Norfolk & Western has applied to the Interstate Commerce Commission for a further modification of its automatic train control order, which originally required the use of the system on its line between Shenandoah, Va., and Hagerstown, Md. On January 3, last, the company was authorized to abandon the brake apparatus and use cab signals only. The present application states that it was expected that the change then asked for could be accomplished at little cost; but it appears that the "A" points in the track, which regulate the indications in the locomotive cab, are not in all cases located exactly at the wayside signal locations, so that the operation of the cab indications would not conform to Rule 6, which requires the cab indication to be at all times consistent with the wayside indications.

To rearrange the track circuits so as to obviate this difficulty would cost $15,000 and would involve further contingent costs; and the company believes that its wayside visual signal system is now so safe that the necessary expenditures for the change would not be justified.

The application presents the usual reasons to show the proposed saving in operat-

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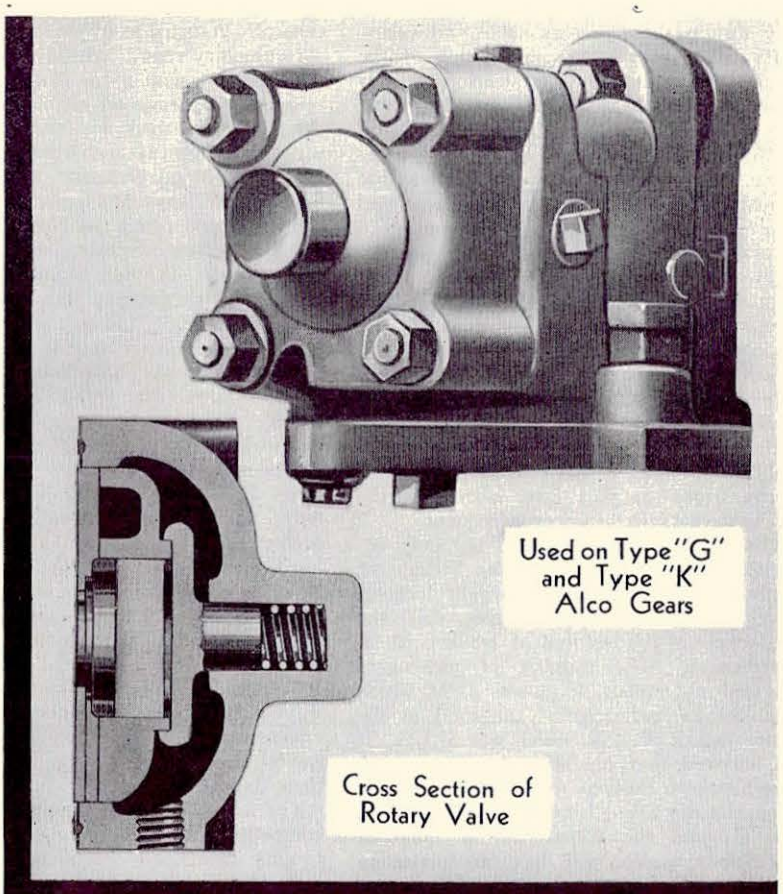
Alco REVERSE GEAR FACTS



Used on Type "G" and Type "K" Alco Gears

Cross Section of Rotary Valve

THE ROTARY VALVE

The Heart of the Gear

is a distinctive feature which gives ALCO Reverse Gears many important operating advantages.

EFFICIENCY. This packless flat rotary valve has long demonstrated its efficiency and reliability in air-brake operation.

SENSITIVITY. It is easy to operate and very sensitive to slight movements of the reverse lever or piston.

ACCURACY. The valve seats properly at all times, eliminating faulty action of the gear through the valve lifting.

SIMPLICITY. This type of valve eliminates the troublesome stuffing box on the valve steam. The valve body has brass bushings to permit the taking up of excess lost motion.

ECONOMY. The entire valve may be easily and quickly removed for grinding or repairs without disturbing or removing the gear. The same valve is used on both the type "K" and type "G" ALCO Gears.

American Locomotive Company
30 Church Street New York N.Y.

ing expenses to be reasonable and necessary. The cost of the installation of the automatic train control system on this line, 239 miles, was $750,899 and the yearly average cost of maintenance, for four years ending with 1932, was $49,803; and of this maintenance cost $7,642 was for wayside apparatus. Discontinuing operation will save the whole of this latter sum. To abandon A.T.C. but to continue the cab signals was expected to save $9,800 annually. Estimating by the record of 1932, $22,343 would be an additional direct saving by discontinuing the cab signals also. The train mileage has decreased since 1922 about 33 per cent, and freight locomotive mileage 59 per cent. The number of scheduled train meets per day averages 31, whereas in 1922 it was 52; and, moreover, extra trains are now rare, whereas in the earlier years extras were frequent.

Safety has been increased not only because of fewer trains but also because of lighter trains and larger freight locomotives. The company believes that the reduction in the volume of traffic will be permanent. The number of passengers carried in October, 1932, was 2,690, which is only 5.4 per cent of the total in the same month of 1922, which was 31,177. It is believed that northbound freight from the Southern Railway at Bristol, Va.; from the Atlantic Coast Line at Winston-Salem, N. C., and the Chesapeake & Ohio at Waynesboro, Va., will have an increasing tendency to move over other lines and through the Potomac Yards gateway.

Numerous further elements of increased safety are noted. The line now has complete automatic block signals, though when the commission first issued its order the manual block system was in use; automatic stokers are now in use on nearly all trains giving the fireman more time to observe wayside signals; the junior brakeman in service on this district has had 16 years of experience and the junior fireman 17 years. Surprise checking has made violations of the rules very rare. Injuries to passengers and employees have been rare, and in four years no one has been injured in a road-train collision in single-track automatic signal territory. The automatic train control has not, so far as known, prevented any accident which would have occurred in the absence of such a system.

General Atterbury Views Railroad Situation

(*Continued from page 872*)

of line with commodity prices, while at the same time there has been established a schedule of freight rates inadequate to the wage levels, but still too high to stimulate rail traffic."

While he next predicted that "under the circumstances now existing" the railroads will probably seek relief under the provisions of the Railway Labor Act, General Atterbury nevertheless contended that this act has, in the main, tended to freeze the "high wage level" existing at the time of its passage. The procedure pertaining to adjustments is so involved and prolonged that railroad management has not as yet generally resorted to it, preferring to work for voluntary reductions, he added.

Proceeding next to his review of the development of railroad regulation, General Atterbury reached his third point—the wastes of highway and water competition. He criticized government expenditures on inland waterways and urged that "above all, we should reject the costly and wasteful St. Lawrence Seaway project, before it is too late." As for highway transport, he said that this agency "has a real field of usefulness" and "fair criticism can only be directed at departures from that field."

"Both highway and inland waterway transportation are subsidized," he continued. "The extent of the subsidy on the highways is not known. Its existence may be deduced from the facts that motor vehicles as a whole do not, through gasoline taxes and license fees, fully support the highways which they use, and that the burden of the taxes is borne by the light cars, for which only low-cost highways are required, and not by the relatively small number of heavy trucks, for which high-cost highways are essential.

"The subsidy to the users of the waterways arises from the fact that they contribute nothing to the charges on the public capital invested in the waterways, nor to their annual upkeep."

The fourth factor of adversity—excessive competition among railways—General Atterbury mentioned only briefly because it is "a matter which recently has been much before the public eye." Railroad management, he said, cannot claim entire immunity to criticism but, he added, "the principal causes for the excessive duplication of services and facilities rest upon the traditional policy of the government to encourage competition, and the long-established practice of patrons to demand as much of it as possible, blind to the inevitable increase in costs."

Summarizing, General Atterbury suggested the following relief measures:

1. Acceptance of the principle that there is a relationship between rates and wages, and that the control of both must be so tied together that the governmental body which has the responsibility of regulating the one must not only have first hand knowledge of the other, but also its control.
2. Assistance by the government, in the form of long-term low-rate financing, to carry the railroads along until safely stabilized by new methods of organization and the revival of business.
3. The regulation applied to the railroads should be more liberalized and brought back to its original basis, and then all competing forms of transportation should be regulated on an equal basis with the railroads. The regulative authority should be the Interstate Commerce Commission. Regulation of the various transport instrumentalities cannot be properly, equitably, or to the greatest advantage of the public, carried out with responsibility divided.
4. The appointment of a railroad co-ordinator as a temporary expedient, pending permanent regrouping of the rail lines.
5. Ultimate consolidation of all railroads into a very limited number of systems, in the interest of efficiency and economy; conserving competition between the great terminals only and abolishing it at intermediate points; and with due regard to employees thereby displaced.

As alternatives to the foregoing, he saw only two possibilities—continued deflation or government ownership of railroads. To adopt the former, he continued, would mean that "after all our experience in past depressions, we have still learned nothing effective about controlling our economic destiny." As for the latter, General Atterbury saw in Canada's experience with the Canadian National a warning to the United States.

Supply Trade

The Nathan Manufacturing Company has moved its Chicago office from 14 East Jackson boulevard to the Railway Exchange building, 80 East Jackson boulevard.

J. W. Montigney, who has served with the **Cleveland Tractor Company,** Cleveland, Ohio, for more than 16 years in

J. W. Montigney

charge of its transportation division, has been given charge of the railway sales of Cletrac crawler tractors. Mr. Montigney has served also as a member of the Great Lakes Regional Advisory Board and the National Industrial Traffic League.

W. F. Kurfess, manager of the mill department of **Joseph T. Ryerson & Son, Inc.,** Chicago, has been appointed assistant vice-president of the company. **M. J. Hartigan** succeeds Mr. Kurfess as manager of the mill department. Mr. Kurfess attended the U. S. Naval Academy at

W. F. Kurfess

Annapolis, and was graduated from Purdue University. He was a member of the first officers training class at Annapolis at the beginning of the World War. Later he was a lieutenant aboard the U. S. S. Porter in active destroyer duty off England and France. Mr. Kurfess entered the structural engineering department of the Ryer-

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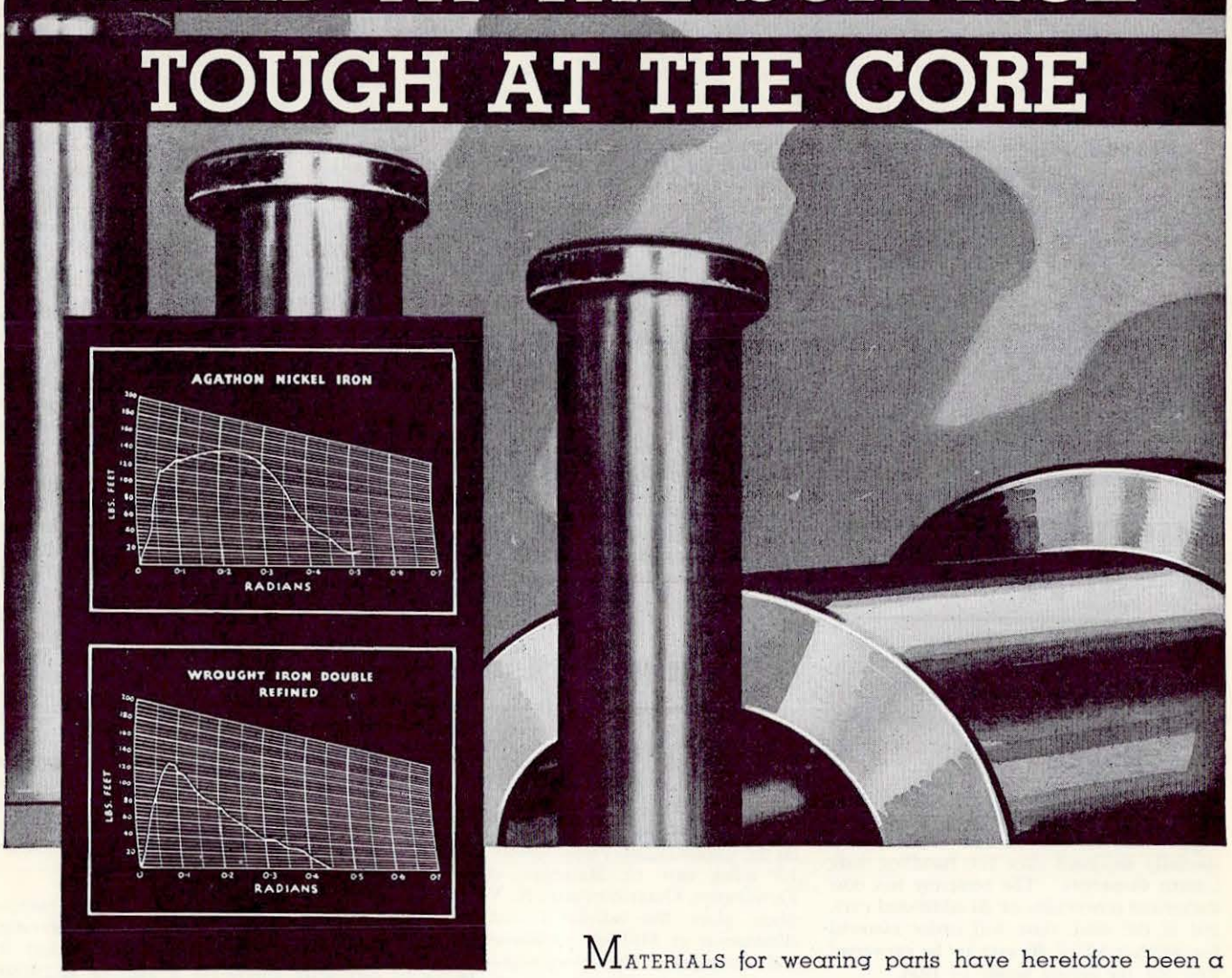
HARD AT THE SURFACE
TOUGH AT THE CORE



MATERIALS for wearing parts have heretofore been a compromise. A hard surface meant a brittle core and if the core was tough enough the surface was too soft. « It remained for Republic to develop in Agathon Nickel Iron the ideal material that combines hardness of surface with toughness of core. « How well Agathon Nickel Iron backs up a hard case with a tough core is shown by the above charts. « The Humphrey Machine which produced these charts, bends the full section to the breaking point of the case and then on to final rupture. The first break in the line indicates the point at which the case was first cracked; the rest of the curve shows the resistance of the core to rupture. « The core of the wrought iron shows rapidly diminishing resistance as the angle of bending increases. « Agathon Nickel Iron, on the other hand, shows stubborn resistance even after the case is broken. The core is tougher and uniform in composition. « Use Agathon Nickel Iron for all case-hardened parts.

Toncan Iron Boiler Tubes, Pipe, Plates, Culverts, Rivets, Staybolts, Tender Plates and Firebox Sheets • Sheets and Strip for special railroad purposes • Agathon Alloy Steels for Locomotive Parts • Agathon Engine Bolt Steel • Agathon Iron for pins and bushings • Agathon Staybolt Iron • Climax Steel Staybolts • Upson Bolts and Nuts • Track Material, Maney Guard Rail Assemblies • Enduro Stainless Steel for dining car equipment, for refrigeration cars and for firebox sheets • Agathon Nickel Forging Steel.

CENTRAL ALLOY DIVISION, MASSILLON, OHIO

REPUBLIC STEEL
CORPORATION
GENERAL OFFICES YOUNGSTOWN, OHIO

AGATHON NICKEL IRON

son Company in 1912 and has held many positions leading up to his present appointment.

OBITUARY

Spencer Otis, president of the National Boiler Washer Company, Chicago, died on June 10 at Waco, Tex., of Bright's disease.

Alfred Nathan, president of the Nathan Manufacturing Company, New York, and an officer in several other industrial companies, died on May 22, at the Columbia Medical Centre, New York, after a short illness. Mr. Nathan was born on November 21, 1866, at New York. He was graduated from Stevens Institute of Technology, in 1890 as a mechanical engineer and succeeded his father, Max Nathan, as president of the Nathan Company in 1908. Mr. Nathan was a member of a number of societies and clubs including the American Society of Mechanical Engineers.

Equipment and Supplies

FREIGHT CARS

THE INTERNATIONAL HARVESTER COMPANY is having repairs made to three hopper coke cars at the shops of the Chicago, West Pullman & Southern.

THE LEHIGH & NEW ENGLAND has converted in its shops at Pen Argyl, Pa., 60 hopper coal cars of 50 tons' capacity into specially designed cars for handling bulk cement shipments. The company has now authorized conversion of 20 additional cars, and at the same time will order material for another lot of 20 cars to be converted later for the spring traffic of 1934.

PASSENGER CARS

THE CHICAGO, BURLINGTON & QUINCY directors have authorized the purchase of a three-car articulated high speed passenger train, which, according to present plans, will embody stainless steel construction and be equipped with a Diesel-electric power plant. The train is to be used in turnaround service between Lincoln, Neb. and St. Joseph, Mo., via Omaha.

IRON AND STEEL

THE WABASH has ordered 105 tons of structural steel for a bridge at Whitham, Mo., from the American Bridge Company.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered 225 tons of structural steel for a bridge at Seneca, Ill., from the American Bridge Company.

NEW YORK CENTRAL LINES—An order has been given to the R. C. Mahon Company for 350 tons of steel for a bridge at Detroit, Mich.

THE NORFOLK & WESTERN has placed orders for 10,000 tons of 131-lb. steel rail, divided as follows: 7,500 tons to the Carnegie Steel Company and 2,500 tons to the Bethlehem Steel Company.

CANADIAN NATIONAL.—The Government of Canada, as a measure of unemployment relief, has placed an order for 50,000 tons of rail with the Dominion Steel & Coal Corporation, Sydney, N. S. While this rail is in excess of present C.N.R. requirements it is for eventual use by that road and thus will be rolled to C.N.R. specifications. It will not be paid for until actually required by the railroad and meanwhile the government is guaranteeing interest on bank loans obtained by the Dominion Steel & Coal Corporation to finance the operation.

MACHINERY AND TOOLS

THE LEHIGH & NEW ENGLAND has placed an order for a 34 in. by 21 in. American engine lathe.

MISCELLANEOUS

THE OREGON SHORT LINE on June 5 reemployed 450 men in its shops at Pocatello, Idaho. This action was taken on account of the improvement in railroad business.

Construction

NEW YORK CENTRAL.—The New York Public Service Commission has denied a petition of this company for a rehearing on orders issued in connection with the elimination of the Barrys' grade crossing on the Canandaigua-Victor county highway 1.5 miles east of Mertensia station in Farmington, Ontario county, N. Y. Present plans place the estimated cost of the elimination at $101,600 exclusive of land and damages. The Commission's order providing for the elimination of the Weedsport road crossing of the New York Central at Weedsport station in Brutus, Cayuga county, N. Y., has been amended so as to provide for the elimination of the crossing by placing the highway above the grade of the railroad. The change was made necessary by the elimination of various crossings of the West Shore in and near Weedsport. The amended plan substantially conforms with the orginal plan except that provision is made to span the West Shore tracks and the clearance of the structure is reduced from 22 ft. above the rails to 19 ft. The total length of the grade separation structure and approaches will not be altered.

PENNSYLVANIA-READING. — The Interstate Commerce Commission has authorized these companies to consolidate the operations of their lines in Southern New Jersey which will involve the construction of connecting tracks, estimated to cost $469,559.

WABASH.—The receivers of this road have been authorized by the United States District Judge Charles B. Davis, St. Louis, Mo., to expend approximately $243,000 in the replacement of about 18½ miles of main line rail with a heavier section between Lafayette Junction, Ind., and Attica.

Financial

ATCHISON, TOPEKA & SANTA FE.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and the Western Arizona to abandon as to interstate and foreign commerce the line of the latter company extending from McConnico, Ariz., northerly to Chloride, 23.4 miles.

BALTIMORE & OHIO.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $1,792,000 of refunding and general mortgage 6 per cent, series E, bonds to be pledged and repledged until June 30, 1935, as collateral security for notes. Several subsidiaries have been authorized to issue bonds of a similar total amount in reimbursement for advances, which bonds are to be deposited as security under appropriate mortgages of the B. & O.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC-NORTHERN PACIFIC.—*Joint Operation.*—The Interstate Commerce Commission has authorized these two companies to operate jointly their lines between Enumclaw, Wash., and Bagley Junction, 15.8 miles. This will involve the abandonment by the Milwaukee of 9 miles of line and 3.4 miles will be abandoned by the Northern Pacific.

CHICAGO, NORTH SHORE & MILWAUKEE. —*R.F.C. Loan Denied.*—The Interstate Commerce Commission, after argument and further consideration, has affirmed the previous report of Division 4 denying approval of the application of the receivers for a loan of $768,000 from the Reconstruction Finance Corporation.

DENVER & RIO GRANDE WESTERN.—*R. F. C. Loan Reduced.*—The Interstate Commerce Commission has modified its certificate approving a loan of $2,250,000 from the Reconstruction Finance Corporation, reducing the amount to $2,000,000. Owing to the delay the company was compelled to meet certain obligations with its own funds and it has only received $1,000,000 from the corporation. In a supplemental application it said that economies heretofore effected and an improvement in its business indicated that a further advance of only $1,000,000 instead of $1,250,000 would enable it to meet its requirements.

GREAT NORTHERN.—*Bond Maturity Extension.*—The Interstate Commerce Commission has authorized this company to extend to July 1, 1943, the maturity of $41,963,000 of consolidated mortgage bonds of the St. Paul, Minnesota & Manitoba.

GREAT NORTHERN.—*Bond Extension.*—The consolidated bonds of the St. Paul, Minneapolis & Manitoba, totaling $41,963,000, mature on July 1 and the company wishes to extend them until 1943. It offers interest at 5 per cent plus a cash payment of $38.10 per $1000 bond for all bonds deposited under the plan. Over 60 per cent have been so deposited and the First National Bank of New York will purchase or find purchasers for up to 25 per cent of

Continued on next left-hand page

The NEW "AB" FREIGHT BRAKE

HAS IMPROVED FLEXIBILITY FOR GRADE OPERATION

THE improved quick service feature of this equipment, which assures such an effective and efficient brake throughout long trains in level service, is automatically modified to conform with the best operating conditions for grade service . . . The cylinder pressure resulting from the substantial brake pipe reduction that hastens serial action is limited to a definite amount so that when a re-application is made with retainers in holding position, quick service activity does not add cylinder pressure, but merely hastens serial action . . . This increases the flexibility of control while cycling on descending grades without liability of stalling the train or running at excessive speeds, thus assuring safe and smooth control of greater tonnage trains with more uniform distribution of wheel temperature and brake shoe wear.

This Advertisement is No. 6 of a Series.

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the total issue, which it will deposit under the plan. The holders of 96 per cent of the company's first and refunding mortgage bonds have agreed to the extension of the consolidated bonds, such consent being necessary since the consolidated bonds are a prior lien on the mileage covered.

GREAT NORTHERN.—*R. F. C. Loan.*—Division 4 of the Interstate Commerce Commission has approved a loan of $6,000,000 to this company from the Reconstruction Finance Corporation to pay interest on funded debt due July 1, requiring that the company pledge as collateral $12,000,000 of its general mortgage 6 per cent gold bonds.

MISSOURI PACIFIC.—*Reorganization.*—The Guarantee Trust Company, New York, and Benjamin F. Edwards, trustees under the first and refunding mortgage bonds of the Missouri Pacific, dated April 2, 1917, have received permission by Federal Judge Faris to intervene in the bankruptcy suit of the carrier. The court order set June 27, 1933 for a hearing and stated that the railroad may file an answer within 20 days. Petitioners stated that by reason of defaults in maturity and interest payments which fell due on April 1 and May 1, and still remain unpaid, they desire to exercise their right of entry to protect and enforce the rights of holders of the first and refunding mortgage and to collect tolls, earnings and profits of the mortgage properties and apply them in accordance with the agreement provided in the first and refunding mortgage indenture.

MOBILE & OHIO.—*Operating Contract.*—E. E. Norris, receiver, has applied to the Interstate Commerce Commission for authority for the operation of freight trains over the line of the Southern between Corinth, Miss., and Memphis, Tenn., 87.34 miles, under a contract with the Southern dated April 16, 1932.

NEW YORK CENTRAL.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and the Michigan Central to abandon a branch line extending from Mount Forrest, Mich., northerly to Bentley, 4.7 miles.

OREGON-WASHINGTON.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority for the abandonment of its Brogan branch, in Oregon, 22.86 miles.

PENNSYLVANIA.—*Consolidation of South Jersey Lines.*—The Interstate Commerce Commission has authorized the consolidation (not in the strict meaning of the interstate commerce act), by lease, transfer of stock and operation under trackage rights, of the lines of the Pennsylvania and Reading in Southern New Jersey, involving the abandonment of several parallel lines and duplicate facilities. The Atlantic City R.R., the Reading subsidiary, is authorized to acquire control of the West Jersey & Seashore, the P.R.R. subsidiary, by assignment of the P.R.R.'s lease of the West Jersey to the Atlantic City R.R., control of which latter company is to pass to the P.R.R. by purchase for $1 of two-thirds of its capital stock from the Reading, which latter company will retain one-third stock ownership. The two companies guarantee, proportionate to their stock ownership, the payments required under the terms of the West Jersey's lease to the P.R.R., i.e., 6 per cent dividends on its stock and interest on its bonds, maturities of which must be met by the lessee. The South Jersey lines, taken together in 1925, had passenger revenues of $11,019,727, which in 1932 had fallen to $2,922,808. Freight revenue in 1925 was $6,502,890 and in 1932 had declined to $3,270,310. Motor transport accounts largely for the loss in traffic, the number of vehicles crossing the Delaware river between Philadelphia and Camden having increased from 5,400,000 in 1925 to 13,016,000 in 1932 due to the construction of a bridge at that point and tremendous expansion of heavy-duty highways in South Jersey. The area is served by 62 bus lines and 123 truck lines which reach all principal points in the territory. The joint railways in 1932 had a net income deficit of $1,582,054. The savings under consolidation are estimated at $1,612,211, which would exceed the 1932 deficit. The Atlantic City R.R. will abandon 32.7 miles of line, including its main line between Winslow Junction and Atlantic City (except for industry tracks), a portion of a branch line between Williamstown and Atco, its passenger terminal at Camden, and a short section near Gloucester. The West Jersey will abandon 45.5 miles, including the main line from Woodbine Junction to Cape May (except for industry tracks), the branch extending from Wildwood Junction to Wildwood, a portion of Ocean City branch and the Stone Harbor branch. Where stations on lines to be abandoned are located at any considerable distance from the stations on the parallel line which is retained in service, the railroad will provide train-connection bus service. Seven short connecting lines will be constructed at a total cost of $469,559. The Atlantic City will use the P.R.R. passenger terminal at Camden under trackage rights. In addition to the savings in operating expenses, necessity for the elimination of a large number of grade crossings will be avoided.

Bonds.—The Interstate Commerce Commission has authorized the Philadelphia, Baltimore & Washington to issue $1,185,000 of general mortgage bonds, series D, to be delivered at par to the Pennsylvania in partial reimbursement for advances, the latter company to assume liability as guarantor of the bonds.

READING.—*See Pennsylvania.*

READING.—*Control of Jersey Central.*—The Interstate Commerce Commission has authorized this company to acquire control of the Central of New Jersey by acquisition of capital stock. This control was acquired in 1901 by the purchase of 145,000 shares which, in 1921, the company was compelled by the courts to place in the hands of trustees.

ST. JOSEPH BELT.—*Excess Income.*—Division 1 of the Interstate Commerce Commission has issued a final recapture report finding that this company earned $83,348 of excess net railway operating income for the calendar years 1921 to 1925, inclusive.

ST. LOUIS-SAN FRANCISCO.—*Reorganization.*—Following the filing of a reorganization petition in the federal court at St. Louis recently the Interstate Commerce Commission on June 12 announced the following additions to its panel of trustees from which courts may select if they desire: J. M. Kurn, receiver of the St. Louis-San Francisco, and W. R. Gentry, Joseph W. Jamison, Luther Ely Smith, and Fred L. Williams, all of St. Louis.

SOUTHERN PACIFIC.—*Bonds.*—The Interstate Commerce Commission has authorized the Central Pacific to issue $614,000 of first and refunding mortgage 4 per cent bonds to be delivered to the Southern Pacific at par in part payment of advances. The latter company is authorized to assume obligation as guarantor of the bonds and to pledge any or all of them as collateral security for notes issued within the limitations of Section 20a (9) of the Interstate Commerce Act.

WABASH.—*Construction Claim.*—The city counselor of St. Louis, on May 31, filed in the United States district court a claim on behalf of the city against the Wabash which is now in federal receivership, asking that the claim arising out of the construction of the Union-Lindell viaduct over the Wabash tracks in Forest Park be classed as a preferred claim under the receivership. In the claim filed, it was stated that the city had expended $506,962 in the construction of the grade separation project, the amount being subject to deductions in accordance with the findings made by the Public Service Commission of Missouri in a proceeding between the city and the Wabash for the determination of the portion of the cost of the grade separation project to be borne by the city and the railroad, respectively. In the proceeding before the Public Service Commission, it was determined (1) that the total cost of the work properly chargeable to the grade separation project was $693,003; (2) that the total expenditures of the interested parties properly chargeable to the grade separation project were $479,730 by the city of St. Louis, $204,512 by the Wabash, and $8,760 by the Western Union Telegraph Company; (3) that the total expenditures made for the grade separation project be divided between the interested parties in the following amounts: The City of St. Louis, $413,174; the Wabash, $275,449; and the Western Union Telegraph Company, $4,380. The Public Service Commission determined that the total cost of the project should be divided between the city of St. Louis and the Wabash on a general percentage basis of 60 per cent to the city and 40 per cent to the Wabash. In order to protect the claim of the city against the Wabash, the city filed its claim for the balance due it from the Wabash.

WACO, BEAUMONT, TRINITY & SABINE.—*R. F. C. Loan Denied.*—Upon reconsideration the Interstate Commerce Commission has affirmed a previous decision denying an application of the receivers for approval of a loan from the Reconstruction Finance Corporation to finance construction of an extension of the present line as part of a new and shorter route between Waco and Port Arthur, Tex., on the ground of in-

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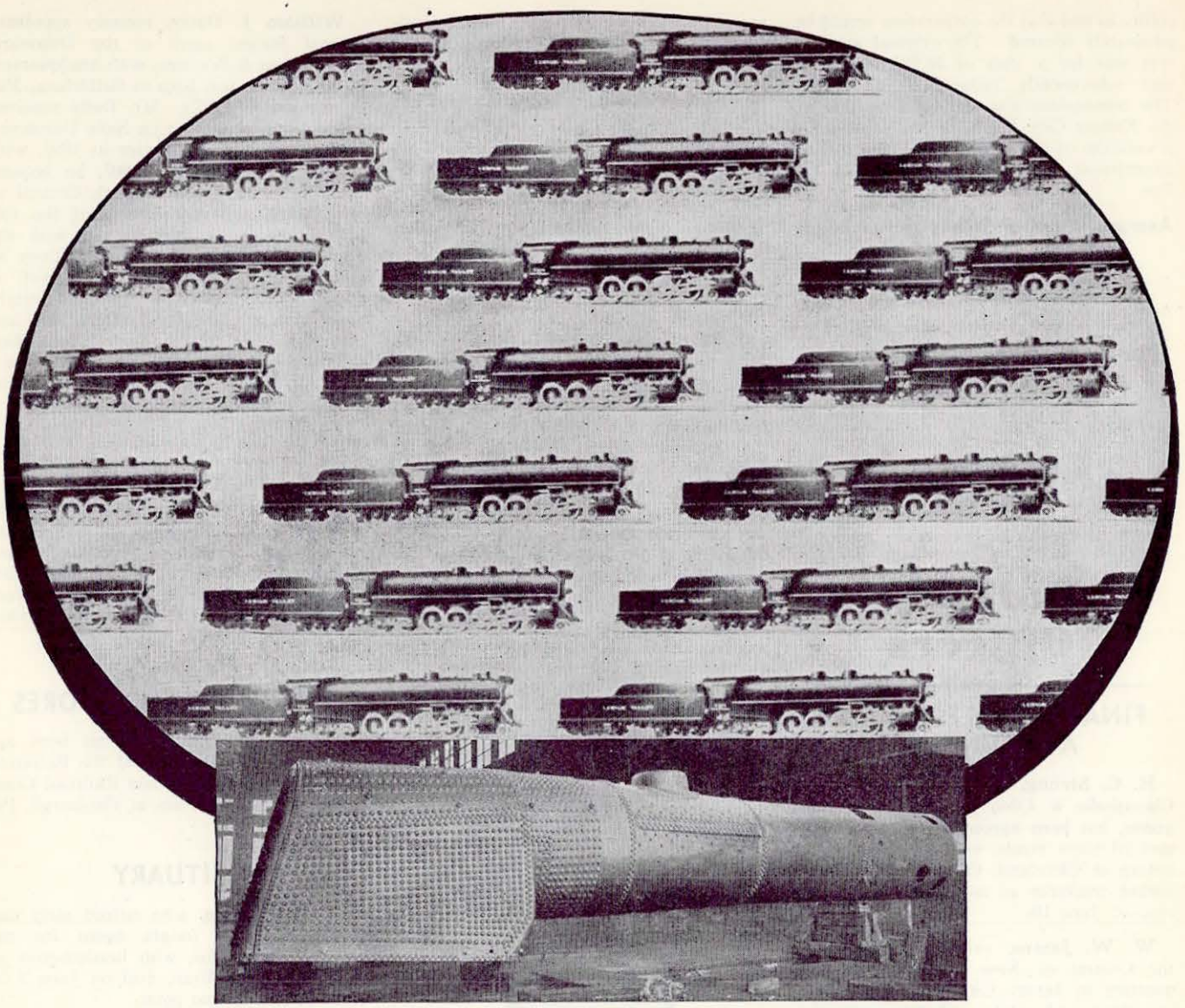

Boiler and firebox of low carbon nickel steel plate installed in Lehigh Valley locomotive, 5200 series

22 LOCOMOTIVES... 2 YEARS IN OPERATION

...all giving excellent service

BOILERS, FIREBOXES AND OTHER PARTS MADE OF

NICKEL ALLOY STEEL

● Two years ago, twenty-two Type 4-8-4 locomotives of the 5100 and 5200 series, were delivered to the Lehigh Valley Railroad. One of these engines has since piled up 100,000 miles in a single year. Another powers one of the world's fastest freight trains between New York and Buffalo. All are giving the highest satisfaction, thanks to the genius of modern locomotive design and the use of modern metals.

For boilers, fireboxes, and other important parts listed below, the manufacturers—the American Locomotive Company and the Baldwin Locomotive Works—selected low carbon Nickel Steel plate because its superior strength permits the use of thinner plate sections, thereby cutting down weight and at the same time providing ample strength and long life.

The marked trend to more and more Nickel Alloy Steels in locomotive construction has been brought about solely by proven merit...merit reflected in the greater strength, toughness and shock-resistance of these materials. The high resistance of Nickel Steel to aging embrittlement at boiler operating temperatures makes it ideal not only for boiler and firebox plate, but for other parts subject to unusual stress, pressure or wear. Our engineers are always glad to consult with you in selecting the Nickel Alloy Steels that best suit your requirements.

Lehigh Valley 5100 and 5200 series locomotives also have the following Nickel Steel Parts:

Eccentric rods, knuckle pins, superheater bolts, boiler check studs. Booster parts as follows: axle gear, idler gear, pinion shaft, connecting rods, side rods, clutch shaft, clutch shaft sleeve, throttle valve parts.

THE INTERNATIONAL NICKEL COMPANY, INC.

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ability to find that the corporation would be adequately secured. The original application was for a loan of $8,983,285 but it was subsequently reduced to $3,750,000. The commission also denied a petition of the Kansas City Southern and others for a vacation of the certificate issued by the commission authorizing extensions of the line.

Average Prices of Stocks and of Bonds

	June 13	Last week	Last year
Average price of 20 representative railway stocks..	40.63	39.93	14.26
Average price of 20 representative railway bonds..	68.94	68.52	50.46

Dividends Declared

Burlington, Cedar Rapids & Northern.—$3.00, semi-annually, payable July 1 to holders of record June 15.

Elmira & Williamsport.—$1.61, semi-annually, payable July 1 to holders of record June 20.

Tunnel R. R. of St. Louis.—$3.00, semi-annually, payable July 1 to holders of record June 18.

Ware River.—Guaranteed, $3.50, semi-annually, payable July 1 to holders of record June 30.

Railway Officers

FINANCIAL, LEGAL AND ACCOUNTING

H. C. Strong, assistant cashier of the Chesapeake & Ohio and the Pere Marquette, has been appointed assistant secretary of these roads, with headquarters as before at Cleveland, Ohio, instead of assistant treasurer as noted in the *Railway Age* of June 10.

W. W. James, valuation engineer of the Central of New Jersey, with headquarters at Jersey City, N. J., has been appointed real estate and tax agent for that road, with the same headquarters, succeeding **L. M. Hannaford,** deceased. Mr. James will continue to serve also as valuation engineer.

OPERATING

M. F. Barry, superintendent of car service of the Chicago River & Indiana, has had his headquarters moved from Gibson, Ind., to Chicago.

N. Johnson and **W. L. Hancock,** superintendent and car accountant, respectively, of the Louisiana & Arkansas, have had their headquarters moved from Alexandria, La., to Shreveport.

At the request of **W. E. Williams,** manager, department of personnel of the Missouri-Kansas-Texas, at St. Louis, Mo., that he be relieved of such duties the position has been abolished and Mr. Williams will hereafter act in a consulting capacity.

TRAFFIC

H. E. Lounsbury, general freight agent for the Oregon-Washington Railroad & Navigation Co., at Portland, Ore., has been appointed general freight and passenger agent with the same headquarters.

H. R. Whiting, traffic manager of the Louisiana & Arkansas, with headquarters at Shreveport, La., has been appointed to the newly-created position of executive general agent of the Louisiana, Arkansas & Texas (Texas unit of the former road), with headquarters at Dallas, Tex. Mr. Whiting's former position of traffic manager of the L. & A. has been abolished and the duties placed under the jurisdiction of **B. S. Atkinson,** senior vice-president, at Shreveport.

E. L. Jones, general agent for the Minneapolis & St. Louis, at San Francisco, Cal., has retired and **J. B. Helwig,** general agent at Los Angeles, has had his jurisdiction extended to include the territory formerly covered by Mr. Jones. **I. L. Colborn,** general agent at Detroit, Mich., has retired and **E. G. Gustafson,** general agent at Chicago, now has jurisdiction over the Detroit office. **A. J. Harger,** traveling agent at St. Louis, Mo., has been appointed acting general agent with the same headquarters.

P. R. Flanagan, who has been appointed assistant traffic manager of the Chicago Great Western, with headquarters at Chicago, as noted in the *Railway Age* of June 10, was born on June 13, 1883, at Port Hope, Ont., and after a common school and business college education entered railway service in 1900 with the Great Northern at Spokane, Wash. For three years he served this company in the local freight office at Spokane and as a switchman, yardmaster and brakeman, then going with the Transcontinental Freight Bureau at Wallace, Idaho. In 1905 he re-

P. R. Flanagan

turned to railway service as chief clerk to the general agent of the Northern Pacific at Wallace, and in 1907 he returned to the Great Northern, being appointed contracting freight agent at Spokane a year later. In 1910, Mr. Flanagan entered the service of the Chicago Great Western as general agent at Spokane, which position he held until 1920 when he was advanced to assistant general freight agent at St. Paul-Minneapolis, Minn. Seven years later he was sent to Chicago as general freight agent, which position he held until his recent appointment as assistant traffic manager, effective June 1.

William J. Daily, recently appointed general freight agent of the Delaware, Lackawanna & Western, with headquarters at New York, was born at Bethlehem, Pa., on October 17, 1879. Mr. Daily received his higher education at La Salle University and entered railroad service in 1897, with the Lehigh Valley. In 1907, he became connected with the New York Central as tariff clerk, and in February of the following year he entered service with the Lackawanna holding various positions as chief tariff clerk; chief clerk; chief of tariff bureau; assistant general freight agent and on June 1 Mr. Daily was appointed general freight agent. From May, 1923 to May, 1931, he served as chairman of the advisory tariff committee of the Trunk Line Association.

MECHANICAL

E. M. Wilcox, master car builder on the New York Central Lines, with headquarters at Chicago, has had his jurisdiction extended to include the line of the Cleveland, Cincinnati, Chicago & St. Louis between the south switch of the Lyons (Ill.) yard and Osborn, Ind.

PURCHASES AND STORES

Thomas R. Dickinson has been appointed purchasing agent of the Bessemer & Lake Erie and the Union Railroad Company, with headquarters at Pittsburgh, Pa.

OBITUARY

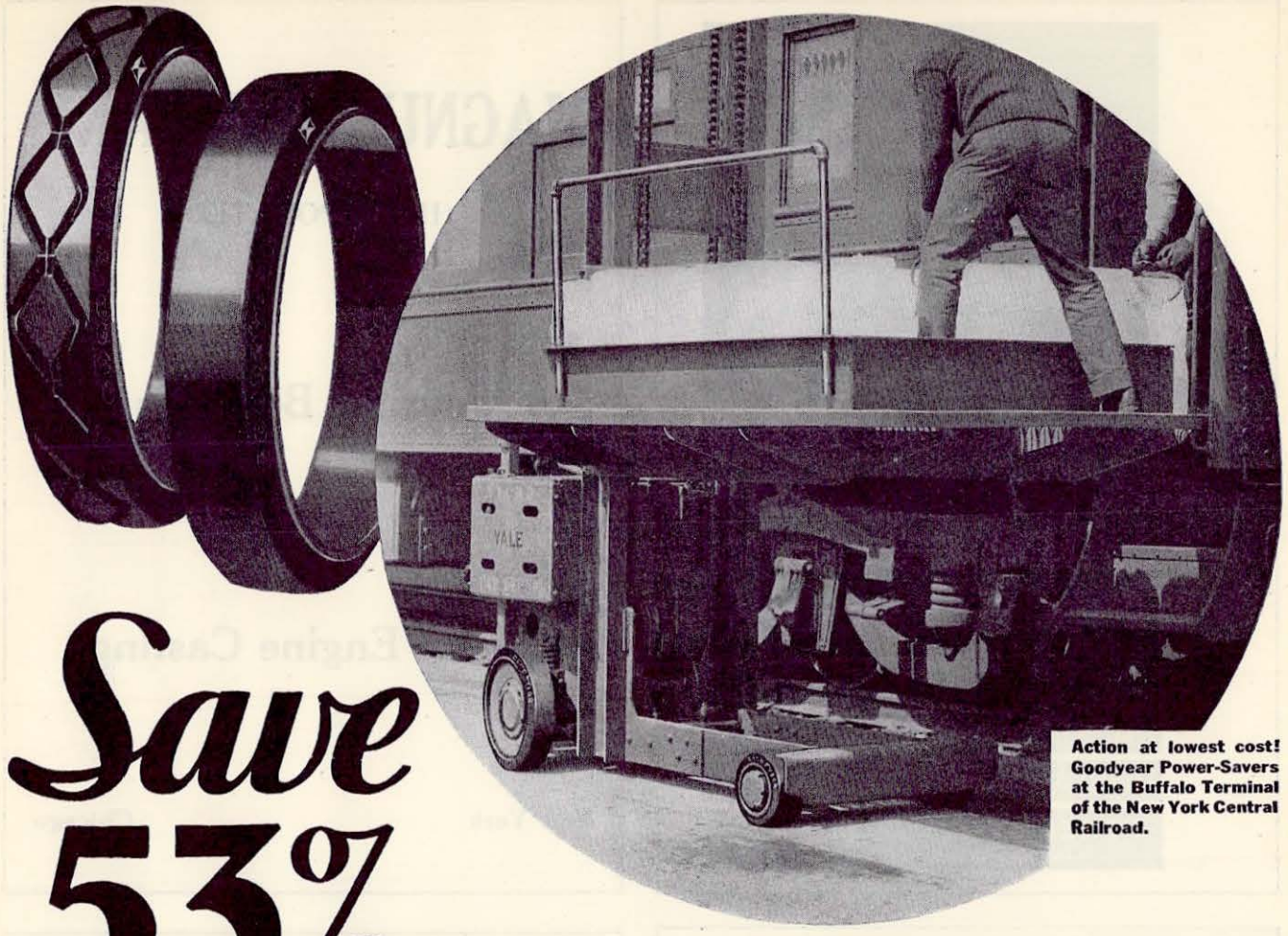
H. E. Godwin, who retired early this year as general freight agent for the Oregon Short Line, with headquarters at Salt Lake City, Utah, died on June 2 of heart disease at that point.

William H. Simpson, assistant general passenger agent of the Atchison, Topeka & Santa Fe, with headquarters at Chicago, died on June 12 in the Illinois Central hospital at Chicago.

Charles Heebner, who retired as general counsel of the Reading in February, 1928, after approximately 40 years service with that road, died at the Bryn Mawr Hospital, Philadelphia, on June 12, following an attack of pleurisy. Mr. Heebner was 74 years of age.

Clayton N. Woodward, assistant to the general manager of the New York, New Haven & Hartford, with headquarters at New Haven, Conn., died at the New Haven Hospital on June 12 following an operation. Mr. Woodward was 66 years of age and had been in the service of the New Haven for approximately 50 years.

John J. Pierce, assistant superintendent of the Morris & Essex division of the Delaware, Lackawanna & Western, with headquarters at Hoboken, N. J., died at his home in Jersey City on June 13, after a two weeks' illness. Mr. Pierce was 62 years of age and had been with the D. L. & W. for 45 years, having first entered its service as a brakeman.



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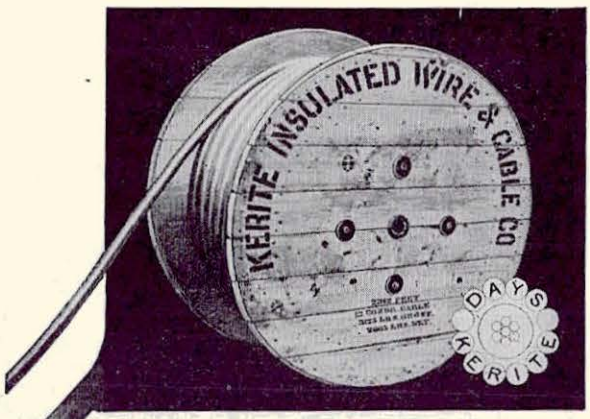

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AND

Bronze Engine Castings

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For
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to Advertisers
see
page 22

REGULATION OF RAILROAD FINANCE

By
John H. Frederick, Ph. D.,
Frank T. Hypps, Ph. D.,
and
James M. Herring, Ph. D.

Instructors in the Wharton School of Finance and Commerce; University of Pennsylvania

Regulation of the financial affairs of railroads by the Federal government through the Interstate Commerce Commission, under the Transportation Act of 1920, is clearly explained in this book. The various tests applied by the Commission in determining the elements of public interest to which the statute usually refers are traced, together with the nature and reasons for the Commission's action in regulating the financial affairs of the railroads.

Contents

Introduction—Certificates of Public Convenience and Necessity for Construction and Abandonment of Railroads—The Acquisition of Control of Carriers—The Recapture of Excess Earnings—The Issuance of Securities and Assumption of Obligations—Interlocking Directorates—Appendices: Provisions of the Interstate Commerce Act Administered by the Finance Bureau of the Interstate Commerce Commission — New Railroad Construction — Abandonments—Bibliography—Index.

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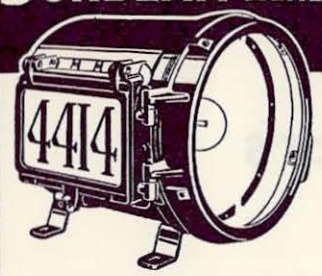

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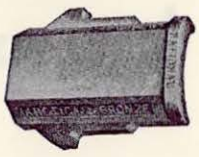

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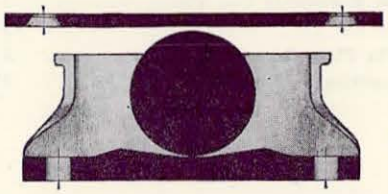

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Name ..... Old Address .....

New Address .....

..... Position ..... Company .....

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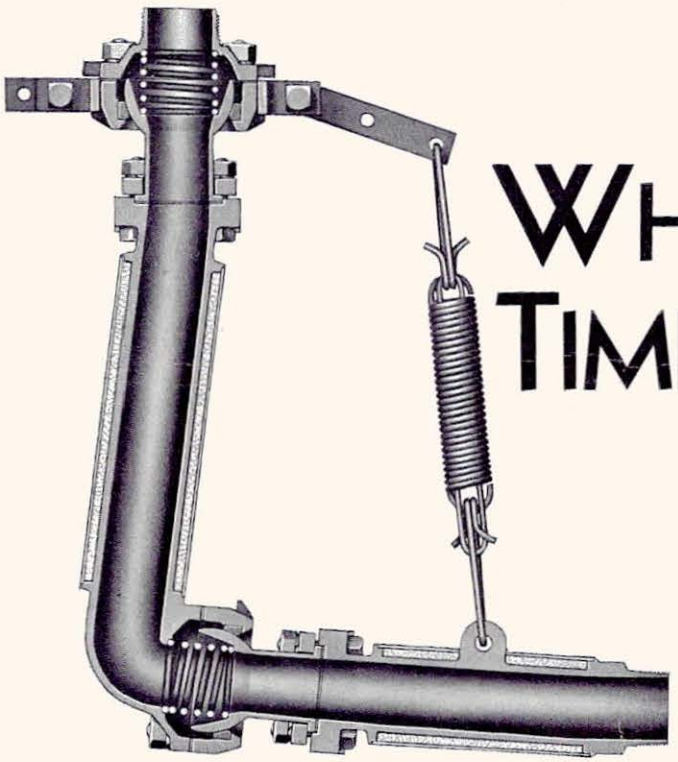

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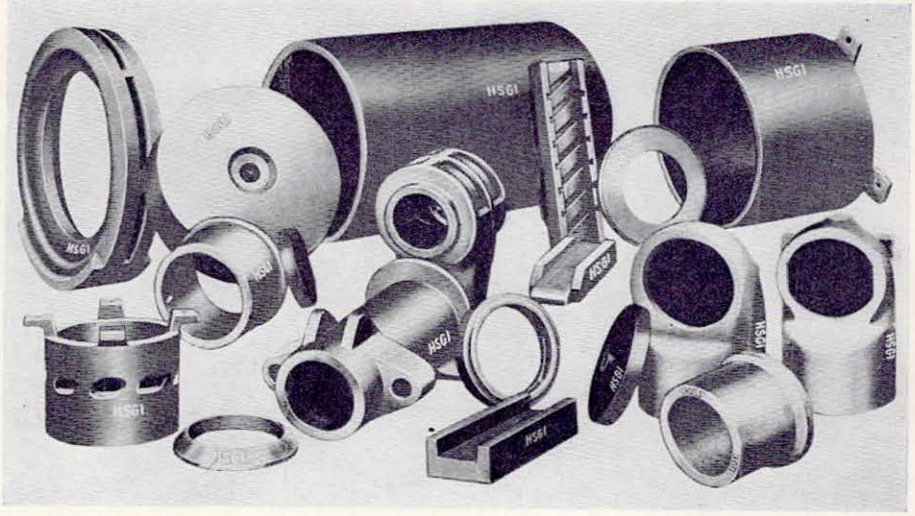

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